STATE OF CALIFORNIA The Resources Agency

Department of Water Resources

BULLETIN No. 177-71

WATERMASTER SERVICE IN NORTHERN CALIFORNIA 1971 SEASON

DECEMBER 1972

NORMAN B. LIVERMORE, JR.
Secretary for Resources
The Resources Agency

RONALD REAGAN

Governor

State of California

WILLIAM R. GIANELLI

Director

Department of Water Resources

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Bulletin No. 177-71 discusses the watermaster service provided by the Department of Water, Resources to areas in Northern California during the 1971 watermaster season. Authority to prepare this report is described in the California Water Code. Division 2, Part 4, Chapter 7.

The bulletin is presented in two parts. The first part contains general information about water rights, water supply, service areas, and watermaster duties. The second part contains the specifics of the 1971 watermaster season, including streamflow in the various service areas, methods of distribution, and other significant information pertinent to 1971 watermaster activities.

> Cliem R. Gravelle William R. Gianelli, Director Department of Water Resources

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The Resources Agency

December 29, 1972

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WILLIAM R. GIANBLLI, Director, Department of Water Resources

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N.F. French Creek	French Creek (See French	h Creek)				
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Rush Creek	Ash Creek	11,12			2	13						
Rutherford Creek	Surprise Valley				17	141						
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Silver Creek	Cow Creek				6c	35						
Slaughter Pole Cr.	Cow Creek				6c	35						
Sloss Creek	Susan River				18a	161						
Smithneck Creek	M.F. Feather River	57,58			llc,lld	63,64						
East Channel	M.F. Feather River				11d	64						
Middle Channel	M.F. Feather River				lld	64						
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S.F. Pit River	S.F. Pit River (See Pit			4			
Spring Brook	M.F. Feather River		•		11.j	70	
Spring Channels	M.F. Feather River	58			11k	71	
Spring Creek	Burney Creek	•			4	21	
Susan River	Susan River	153-155	53,55	156,157	18,18c 1	.59,163	
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W. Mill Creek	Surprise Valley (See Mi	ll Creek)		•	•		
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West Side Canal	S.F. Pit River				16d	129	
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West Valley Res.	S.F. Pit River	121,122			16,16c 1	25,128	
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Willow Creek	Susan River	153 - 155	56	157	18e	166	
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Wyndham Creek	Cow Creek				6c	35	

INTRODUCTION

Purpose and Benefits

The primary purpose of watermaster service is to distribute water in accordance with established water rights. This is accomplished by apportioning available supplies in streams which have had water right determinations.

Distribution of water in watermaster service areas is a continuing statutory function of the Department of Water Resources as provided in Part 4 of Division 2 of the California Water Code.

A major benefit of watermaster service to water users and the State is that court litigation and physical violence, which in past years occurred quite frequently, are essentially eliminated. Under watermaster service each water right owner is assured that his rights are being protected without his having to take legal action against other users. Another important benefit results from increased use of available supplies through reduction of waste.

Because both the water right owners and the State receive benefits from water-master service, the costs of performing the service are shared. The State general tax fund pays for one-half the cost of operating each service area. The water right owners in the service area pay the other one-half.

Determination of Water Rights

Almost all of the streams under state watermaster service have had their water rights defined by the courts under one of three adjudication procedures. These adjudications (decrees) establish each owner's rights as to allowable rate of diversion, season of use, point of diversion, and place of use. They also establish priorities whereby each owner's rights are shown in relation to the rights of all other decreed owners. Under this system all rights of any one priority must be fully satisfied before water can be diverted under any lower priority rights.

Water rights determinations necessary for establishing watermaster service areas may be accomplished by "statutory adjudication", "court adjudication", "court reference", permit or license to appropriate, or agreement.

Statutory Adjudications

The California Water Code (Sections 2500-2900) contains procedures whereby

water users on any stream may petition the State Water Resources Control Board, Division of Water Rights, to make a legal determination of water rights on that stream. If the Board finds that such a determination is in the public interest, it proceeds with a statutory adjudication. This adjudication ultimately results in a court decree which defines all water rights on the stream.

Court Adjudications

A less extensive method of defining water rights involves a "court adjudication" procedure. This type of adjudication results when two or more parties involved in a water rights dispute seek a solution to their problem under civil law. A decision handed down in such a civil action determines only the water rights of those parties named in the action and therefore does not necessarily define all water rights on the stream. As a result, serious conflicts sometimes arise between decreed water right owners and persons claiming riparian or

appropriative rights which were not specified in the decree.

Court Reference

The "court reference" type of adjudication arises when a civil action as discussed above is referred to the State

Water Resources Control Board for a determination under authority contained in Sections 2000-2076 of the Water Code. The Board's report becomes the basis of the court's decision. As in court adjudications, a court reference determines only the water rights of the parties named in the action.

Watermaster Service Areas

Formation

Watermaster service is provided in areas where the rights have been defined by the superior court or by agreement and where an unbiased qualified person is needed to properly apportion the available water according to the established rights. The Director of Water Resources creates watermaster service areas where these conditions exist, following either a request by the users or an order by the superior court.

The first watermaster service areas were created in September 1929, while the most recent addition was made in November 1968. Prior to 1929, some watermaster service was provided in accordance with the Water Commission Act of 1913. There are now about 50 streams in Northern California which are under state watermaster service.

Facts about the 18 service areas in Northern California, including their

stream systems, counties, decrees and dates of creation, are presented in Table 1. Sixteen of these service areas are in the Northern District, and two are in the Central District.

Description of Region

The service areas are primarily in the mountainous northeastern part of the State where the growing season varies between about 100 and 140 days. Meadow hay and alfalfa are the principal crops under irrigation, although a considerable amount of land is used exclusively for pasturing livestock. Most irrigation is accomplished by gravity systems, with water users diverting directly from the streams at one or more diversion points. However, pumped diversions and sprinkler irrigation systems are becoming popular in some areas.

A map of this region showing the 18 service areas is presented in Figure 1.

Watermaster Responsibilities

Authority

To assure the proper distribution of water within his service area, each watermaster must ascertain the amount of water available and distribute it both by amount and priority in accordance with established water rights. To accomplish his purposes, the watermaster is provided authority both by the Water Code and by provisions of pertinent court decrees or voluntary agreements to physically regulate the various streams in the service area. He is further authorized to supervise the design, construction,

operation, and maintenance of diversion dams, headgates, and measuring devices.

Each watermaster supervises water distribution at approximately 100 to 200 diversions in one or more service areas. The frequency of visiting these diversion points increases substantially in years of short water supply.

Control Devices

Permanent measurement and control devices, which the State requires (Water Code Sections 4100-4104) at each owner's main point of diversion, are constructed by the water users under supervision of the watermaster. Installation of accurate, easily set, and lockable structures is a continuing objective of watermaster service, since once they are built, conflicts among water users almost always stop. Also, the watermaster's ability to visit and set each diversion on a regular basis is greatly facilitated by good structures.

Interpretation of Decrees

The watermaster is often called upon to make immediate field or on-the-spot

interpretations of various court decrees, agreements, etc. Since most of these documents were written more than 30 years ago, many situations have developed that were not initially considered. Therefore, the watermaster must use sound, careful, and practical judgment in attempting to reach workable solutions to water disputes. To accomplish this he must possess a good understanding of California water law.

Water Supply

Water supply in the watermaster service areas is derived principally from unregulated runoff of small streams. Peak runoff, mostly snowmelt, occurs in the spring, with relatively small streamflow occurring in the summer and early fall. Additional supplies from storage reservoirs and ground water pumping are used in some areas to supplement natural streamflow.

In some service areas the water supply must be predicted in advance to determine the date watermastering will begin and, to some extent, the manpower needed. The Department's Bulletin No. 120 series, "Water Conditions in California", is used to assist in these predictions.

Precipitation

The streamflow available for distribution is affected by total precipitation, amount of snowpack, air temperature, and the amount of rainfall received during the irrigation season. The latter is particularly important in the Upper Pit River-Surprise Valley areas, where about 25 to 30 percent of the annual precipitation occurs normally in April, May, and June. Spring storms, which are normally accompanied by relatively cool temperatures, materially affect both the supply and the demand for water. Temperatures in the spring affect the demand

for water and the manner in which snowmelt runoff occurs. A hot, dry spring
depletes the water supply very early,
even in years of normal snowpack. A
cold, wet spring can extend the supply
well into the irrigation season, but
cold temperatures retard the growth of
crops and are not necessarily desirable.

Data collected at representative snow courses showing the snowpack as of April 1, 1971, on all courses and the snowpack on May 1 and June 1 at selected courses is presented in Table 2. This information was obtain from the Department's Bulletin No. 120-71.

Table 3 reports the quantity of precipitation at selected stations in the service areas during the 1970-71 water year. The seasonal precipitation gives an indication of the related water supply available for distribution and provides a basis for comparing the current year's supply with a long-term average.

Streamflow

The general water supply available for diversion within each watermaster area is determined from stream gaging stations placed at key locations in the main stream channels. Several major stations are installed and maintained by the United States Geological Survey

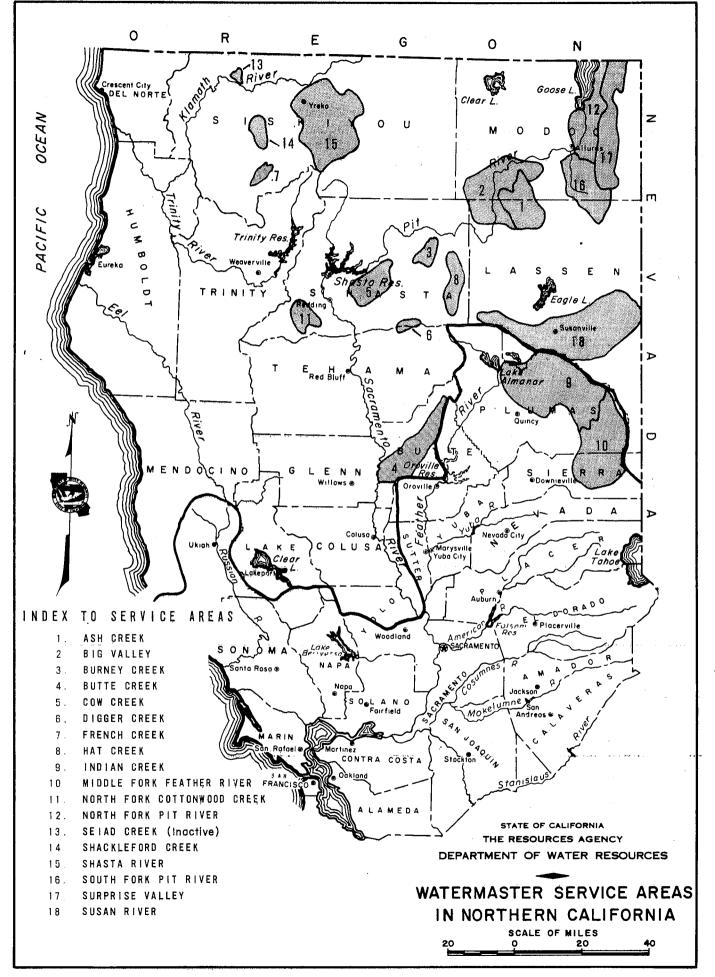


TABLE 1 SUPERIOR COURT DECREES REGULATING WATER DISTRIBUTION

Watermaster Service Area	Name of Stream System	County	Number	Dacree Date	Type+	Date Water- master Service Area Created	Remarks
Ash Creek	Ash Creek	Modoc ++ and Lassen	3870	10-27-47	CR	4-03-59	Included as part of Big Valley service ser- vice area 1940 through 1958.
Big Valley	Pit. River	Modoc ** and Lassen	6395	2-17-59	S	11-13-34	Service provided in accordance with recorde agreement in 1934. Service area operated
				Š.		• •	under recorded agreement 1935 through 1958, and under decree since 1959.
Burney Creek	Burney Creek	Shasta	5111	. 1-30-28	CR	9-11-29	Service provided in accordance with decree since 1928.
Butte Creek	Butte Creek	Butte	18917	11-06-42	S	1-07-43	
Cow Creek	North Cow Creek Oak Run Creek Clover Creek	Shasta Shasta Shasta	5804 5701 6904	4-29-32 7-22-32 10-04-37	CR CR CR	10-17-32 10-17-32 1-21-38	Included in Cow Creek service area.
Digger Creek	Digger Creek	Shasta and Tehama **	2213 3214 3327 4570	8-12-99 5-27-13 10-16-17 2-24-27	C C C	6-11-64	• •
French Cresk	French Creek	Siskiyou	14478	7-01-58	CR	11-19-88	
Hat Creek	Hat Creek	Shasta	5724 7858	5-14-24-, 10-07-35-	C R C R	8-11-29	Service provided in accordance with decree since 1924.
Indian Creek	Indian Creek	Plumas	4185	5-19-50	s	2-19-51	Letter for the second second second
Middle Fork Feather River	Middle Fork Feather River	Plumas ** and Sierra	3095	1-22-40	s .	3-29-40	ent to appropriate to the control of
North Fork Cottonwood Creek	North Fork Cottonwood Creek	Shasta	5479	6-09-20	CR	9-11-29	Service provided intermittently in accordance with the decree since 1924.
North Fork Pit River	North Fork Pit River and all tributaries except	Modoc	4074	12-14-39	s '	12-18-39	All stream systems consolidated into North Fork Pit River service area 12-13-40.
	Franklin Creek New Pine Creek Davis Creek Franklin Creek Cottonwood Creek	Madoc Modoc Modoc Modoc	2821 2782 3118 2344	6-14-32 6-30-32 9-08-33 5-03-40	CR CR CR	6-22-32 7-13-32 9-14-33 12-13-40	
Seiad Creek	Selad Creek	Siskiyou	13774	4-10-50	S .	11-06-50	Service provided in accordance with decree by order of the court in 1950. Service suspended since September 1964.
Shackleford Creek	Shackleford Creek	Siskiyou	13775	4-10-50	\$		Service provided in accordance with decree by order of the court in 1950.
Shasta River	Shasta River	Siskiyou	7035	12-29-32	\$115,50	3-01-33	ru equ _e :
South Fork Pit	South Fork Pit River	Modoc ** and Lassen	3273	10-30-34	CR	12-31-34	Service includes operation of West Valley Reservoir (built subsequent to issuance of
River	bile Creek	Modoc	Agreement	11-22-33	200	1-12-35	decree) in accordance with the demands of South Fork Irrigation District.
Surprise Valley	Cedar Creek	Modoc	1208	5-22-01	C	9-11,-29,	All adjudicated stream systems in Surprise
	Soldier Creek Owl Creek Emerson Creek Mill Creek	Modoc Modoc Modoc Modoc	. 2343 2405 2410 2840 3024	2-15-23 11-28-28 4-29-29 3-25-30 12-19-31	CR CR CR CR	9-11-29 9-11-29 4-02-03 12-30-31	Valley were consolidated into the Surprise Valley service area on 1-10-39. Bidwell Creek was added on March 16, 1960. Service started on Cedar Creek in 1926 in accord- ance with the decree. Service was provided
	Deep Creek Pine Creek Rader Creek Eagle Creek	Modoc Modoc Modoc	3101 3391 3626 2304	1-25-34 12-07-36 6-04-37 4-05-26	CR CR CR	12-29-34 1-13-37 6-12-37 1-10-39	on Soldier and Owl Creeks in 1929 in accord- ance with the decrees by order of the court,
e	Bidwell Creek	Madąc	3284 6420	11-05-37 1-13-60	CR S	3-16-60	
Susan River	Susan River Baxter Creek Parker Creek	Lassen Lassen Lassen	4573 8174 8175	4-18-40 12-15-55 12-15-55	CR S S	11-10-41 2-16-56 2-16-56	

^{*} Explanation of type of Decree:

C Court adjudication (court makes determination from avidence submitted - no report of referee).

CR Court adjudication (referred to State Water Resources Control Board for investigation and report).

Statutory adjudication (State Water Resources Control Board is petitioned by water users to make a determination of all water rights on a stream system).

^{**} Decree entered by the Superior Court of this county.

as part of a Federal-State program for collection of year-round streamflow records. In addition, several stream gaging stations are installed and operated by the watermaster during the irrigation season to provide supplemental information. Also, water stage recorders are often installed by the

watermaster in selected diversion ditches to further assist him in proper distribution of the various water right allotments.

Table 4 presents runoff data at selected stream gaging stations in or near the service areas.

TABLE 2
SNOWPACK AS OF APRIL 1 AND MAY 1, 1971 AT REPRESENTATIVE SNOW COURSES

			WATER CONTENT OF SNOW								
Watermaster	Snow Courses*		April 1	Ap	ril 1, 1971	M	ay 1, 1971**				
Service Areas (Grouped Geographically)*	Relating to Each Group	Elevation (in feet)	Average (in inches)	l n I nche s	in Percent of April 1 Average	In Inches	in Percent of April 1 Average				
French Creek	Parks Creek	6,700	35.0	48.2	138						
Shackleford Creek	Middle Boulder No. 1	6,600	30.0	30.3	1 01	30.4	102				
Shasta River	Little Shasta	6,200	20.0	26,2	131						
Ash Creek	Plus Iska Panah	7 200									
Big Valley	Blue Lake Ranch	7,300	10.0	11.0	110						
North Fork Pit Riyer	Engle Peak	7,200	15.0	16.4	109						
South Fork Pit River	Cedar Pass	7,100	16.0	21,2	132	20.4	128				
Surprise Valley	Adin Mountain	6,350	13.0	18.1	139	12.0	92				
Burney Creek											
Cow Creek	Thousand Lakes	6,500	36.0	50.7	141	45.6	1 2 7				
Digger Creek	New Manzanita Lake	5,900	7.0	7,8	111	0.0	0				
Hat Creek	Burney Springs	4,700	2.0	5.2	260						
Butte Creek	Humbug Summit	4,850	11.0	15.0	137						
Susan River	Silver Lake Meadows	6,450	28.0	38.6	138	37.5	134				
Suspii Kiati	Fredonyer Pass No. 1	5,750	8.0	5,3	88						
Indian Creek	Independence Lake	8,450	41.0	56.4	138						
Middle Fork Feather	Mount Deyer No. 1	7,100	24.0	32.2	134	32.4	135				
	Rowland Creek	6,700	17.0	24,6	145	24.0	141				
River	Yuba Pass	6,700	30.0	42.6	142	34.8	116				

^{*} Snow courses are listed in order of elevation within each geographical group of watermaster service areas.

^{**} Data collected only at stations listed.

TABLE 3
PRECIPITATION AT SELECTED STATIONS - 1970-71 SEASON

				,						0 = 11 0 0 1	•				
Station Name Fort Jones Ranger Station	County Siskly ou	0ct. 1.79 1.58	Nov. 8.15 2,77	B. 92 4.02	Jan. 4.01 4.06	0.29 3.14	Mar. 5.21 2,21	88.0 88.0	May 1,49	June 0, 12 0, 81	0.08 0.35	Aug. 0.38 0.34	Sept. 0.69 0.40	Total 32.07 21.78	Percent Of Mean 147
Happy Camp Ranger Station	Siskiyou	2.99 4.07	7.25	17.75 10.41	12.27	$\frac{2.95}{8.24}$	12,12 6.45	$\frac{3.33}{2.72}$	1.11 2.16	0.8B 1.06	0.20	0.28	2.21 0.74	72.56 54.86	1 32
Yraka	S iskiyou ,	1.72 1,45	8.87 2.00	5.22 3.30	2.51 3.19	$\frac{0.52}{2.29}$	1.61	1.21 0.92	2.18 1.03	0.85	$\frac{0.04}{0.27}$	0.39	0.48	25.78 17.76	1 45
Chico Experimental Station	Butte	1.72	7.20	5.54	2.72 5.03	0.08	3.32	0.39 2.31	0.92	0.33	0.00	0.03	0.38	22.63 26.08	87
Redding Fire Station No. 2	Shasta	2.80	17.32 3.76	9.87 7.26	5.18 7.69	0.41 8.19	7.61	0.85 2.95	2,33	1.98	0,02	0.13	1.41 0.61	49.71 38.92	128
Hat Creek Power House No. 1	Shasta	1.23	1.83	5.21 2.93	2.17	0.42	2.02	1.08	3.18 1.26	2.80 0.77	0.07	0.03	1.47	26.87 18.08	149
Lookout 3WSW	Lassen	1.80	6.87 3.54	4.57 5.31	2,51 8.25	1.21	5.89 1.90	1.05	2.63	2.55 1.95	0.11	0.10	2.74 0.47	31.12	119
Lakeview, Oregon	Lake	0.97	1.37	1.88	1.46	0.59	3.84 1.52	1.63	1.51	1.85	0.21	0.08	1.98	23.86 14.44	185
Alturas Ranger Station	- Mod oc	0.65	3.18	3.33 1.63	1.62	0.20 1.45	3.34	0.92	1.31	1.56	0.42	0.03	1.70	18.59	145
Jess Valley	Modoc	1.48	1.66	1.92	0,47	1.31	1.88	1.64	$\frac{5.09}{2.02}$	$\frac{3.17}{1.62}$	0.11	0.32	2.71	25.87 17.22	150
Cedarville	Modoc	$\frac{1.53}{1.17}$	4.23	2.53 1.69	0.81 1.84	0.81	3.74	1.04	3.99	1.13 0.94	0.23	0.24	$\frac{2,58}{0.37}$	22.96 12.88	178
Susanville Airport	Lassen	0.30	4.30 1.51	4.17 2.56	1.81 2.53	2.51	3.89	0.82	3.35 0.83	1.06	0.10	0.25	0.59	21.08 14.48	146
Greenville Ranger Station	Plumas	2,78	9.83	5.93	3.28 8.89	7.44	11.63 6.47	2.92	1.71	1.29 0.75	0.21	0.01	0.95	50.54 42.96	118
Sierraville Ranger Station	Sierra	1.19	$\frac{8,21}{2.76}$	8.09 4.49	3.55 4.94	0.79	6.55 2.84	1.95	3.88	0.66	0.06	0.11	0.59	35.63 25.39	140
Vinton	Plumaș	0.38	3,85	2.65	0.84	0.14	2.77 1.43	1.08	2.99	0.82 0.50	0.40	0.10	0.25	16.27	127
Note: Figures above	e line are f	or curre	nt seasor	i; below	line are 1	iong-term	average	s.					-		

Note: Figures above line are for current season; below line are long-term averages

TABLE 4

RUNOFF AT SELECTED STATIONS - 1970-71 SEASON (IN ACRE-FEET)

Station	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Average	Percent Average
Shasta River near Yreka	10,170	16,870	27,020	28,970	17,780	27,890	18,770	22,080	12,010	4,090	2,120	5.050	192,800	131,100	147
Hat Creek near Hat Creek	9,970	10,350	9,780	10,160	8,830	10,080	10,320	13,950	15,620	12,070	10,210	9,530	130,900	97,810	134
Pit River near Canby	4,600	15,160	27,680	50,210	18,190	95,580	68,240	73,140	103,900	19,190	5,600	7,930	489,400	171,700	285
South Fork Pit River near Likely	2,400	2,820	1,480	2,720	757	5,470	15,070	32,270	36,300	11,730	10,840	4,780	126,600	53,830	235
Susan River at Susanville	686	1,870	3,040	7,950	6,230	15,350	16,470	26,820	12,000	5,810	4,670	930	101,800	71,150	143
Indian Creek near Crescent Mills	3,990	15,780	37,070	47,630	40,360	122,300	132,300	152,200	85,820	20,660	10,550	9,350	678,000	398,500	170
Middle Fork Feather River near Clio	3,310	8,170	19,110	23,540	25,970	114,000	63,860	78,550	37,110	10,030	3,720	2,870	391,200	208,700	187
Butte Creek near Chico	7,660	22,080	40,940	36,030	25,100	56,790	42,660	36,760	22,360	13,590	10,750	8,780	323,500	292,700	111

1971 WATERMASTER SERVICE

This part of the report consists of 17 sections, each of which describes one of the service areas active in 1971 and the water distribution therein.

Each section begins with a description of the geography, major sources of water supply, and normal method of distribution for the particular area. Pertinent information about the 1971 season, including supply and distribution of water for each major source and other significant items, is also reported. Tables of recorded streamflow data and schematic diagrams or maps of

the stream systems, including location of the diversions, conclude each section.

Mr. Edwin J. Barnes, Supervising Water-master in the Northern District since 1965, took another assignment on July 1, 1971, and Mr. C. Wesley York took over this position.

Each year the watermaster season begins when the need arises in each area, depending upon conditions of streamflow and the farmers' need for water. The season ends on September 30 in all areas. The date service was begun in each area and the name of the watermaster are listed below.

Service Area	Beginning Date	Watermaster
Ash Creek	May 3	Kenneth E. Morgan
Big Valley	May 1	Virgil D. Buechler
Burney Creek	June 1	Virgil D. Buechler
Butte Creek	May 1	John M. Miller
Cow Creek 🛥	June l	Ross P. Rogers
Digger Creek	July 1	Ross P. Rogers
French Creek	July 1	John A. Nolan
Hat Creek	May l	Virgil D. Buechler
Indian Creek*	April 22	Harvey M. Jorgenson
Middle Fork Feather River*	April 1	Conrad Lahr
		H. Joe Nessler
N. F. Cottonwood Creek	July 1	Ross P. Rogers
N. F. Pit River	April 20	Charles H. Holmes
Shackleford Creek	June l	John A. Nolan
Shasta River	April 1	John A. Nolan
S. F. Pit River	May 3	Kenneth E. Morgan
Surprise Valley	March 19	Alden B. Moore
Susan River	April 1	Lester L. Lighthall

^{*} Within Central District; all others in Northern District

Ash Creek Watermaster Service Area

The Ash Creek service area is located in Modoc and Lassen Counties near the town of Adin. There are 30 water right owners in this area with total allotments of 123.65 cubic feet per second.

The major sources of water supply for the service area are Ash Creek and three tributaries, Willow Creek, Rush Creek, and Butte Creek. Ash Creek rises in the eastern part of the service area and flows westerly through the town of Adin into Ash Creek Swamp and then into the Pit River. Rush Creek heads in the northeastern part of the service area and joins Ash Creek above the town of Adin. Willow Creek and Butte Creek originate in the southeastern part of the service area and join Ash Creek near the head of Ash Creek Swamp. Each of these streams is independently regulated.

Approximately 85 percent of the water rights in the service area are in Big Valley, west of the town of Adin. The remaining water rights are along the upstream tributaries and in Ash Valley. The portion of Big Valley served is approximately 10 miles long by 6 miles wide, extending from the town of Adin to the confluence of Ash Creek and the Pit River. The valley floor is at an elevation of approximately 4,200 feet.

A schematic drawing of each major stream system within the Ash Creek service area is presented as Figure 2, page 13.

Water Supply

The water supply for Ash and Rush Creeks is derived primarily from snowmelt, since most of the watershed is between 5,000 and 6,000 feet in elevation. Willow Creek and Butte Creek receive a substantial portion of their water from springs. These creeks normally have sufficient water to satisfy demands

until about June 1, after which the supply decreases rapidly. By the latter part of June, Ash Creek normally has receded to about 20 cubic feet per second, Rush Creek to about two cubic feet per second, Willow Creek to about five cubic feet per second, and Butte Creek to less than one cubic foot per second. The flow of these creeks then remains nearly constant for the remainder of the season.

The daily mean discharge of Ash Creek at Adin is presented in Table 5, page 12. This stream gaging station is located below a substantial number of the points of diversion; consequently, the table does not include all of the available supply of this creek.

No stream gaging stations were installed on Butte, Rush, or Willow Creeks during the 1971 season.

Method of Distribution

Irrigation diversions from Ash Creek and its tributaries are accomplished by small dams placed in the stream channels. Most of the users have several diversion ditches at these dams. ditches convey the water to the fields where it is spread by means of small laterals. Some of the users employ a system of checks and borders, but most of the land is irrigated by Wild flooding. Return flow is captured by downstream ranches for reuse. In one case a rancher may recirculate his drain water before returning it to the creek for further use. In a few areas, pumps are used to divert the water into ditches or through sprinkler systems.

The Ash Creek decree (see Table 1) establishes the number of priority classes on the various stream systems within the Ash Creek service area as follows: Ash Creek - five; Willow Creek - four; Rush Creek - one; and Butte Creek - two.

1971 Distribution

Watermaster service began May 3 in the Ash Creek service area and continued until September 30. Kenneth E. Morgan, Water Resources Engineering Associate, was watermaster during this period. The water supply was above average throughout the irrigation season.

ply in Willow Creek was sufficient to satisfy all allotments (four priorities) until mid-July. After haying operations in late July there was a demand for water by all users. At that time and for the remainder of the season, the flow was sufficient to supply 60 percent of second priority allotments.

Butte Creek. The available water supply in Butte Creek was sufficient to satisfy all allotments (two priorities) until late June. During the remainder of the season the flow gradually decreased. However, no distribution problems were encountered.

Ash Creek. The available water supply in Ash Creek was sufficient to meet all demands (five priorities) until haying time in late June. After haying and for the remainder of the irrigation season, water was available for first priority allotments only.

Rush Creek. The available water supply in Rush Creek was sufficient to satisfy all allotments (one priority) until the end of July. By late September the flow had gradually decreased to about 85 percent of all allotments.

ASH CREEK WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

	TA	BLE	5		
A C LI	CDE	C K	۸т	ADIM	

Day	<i>:</i>	March	: April	: May	: June	: july	/ : Augus	t : Septemb	er : Day
1	1	65 61	417 375	239 247	356 369	59 46 34	23 23 22	28 28	1 2
2	2 3 1	71 84	346 329 323	353 599 375	.355 249 181	34 34 35	22 24 33	23 20 20	3 4 5
		82							
6	j 7	79 85	` 327 331	334 316	148 131	36 34	24 24	25 24	6 7
į	3	86	306	363	119	34 33 32 30	24	19	8 9 10
1 (3	92	297	370	112	32	25	18	9
		93	334	3 0 2	118		24	16	
11		107	295	273	96	29 28	24 24	16 17	11
12 13	<u>′</u>	3 45 53 7	261 245	257 227	89 81	28	23	18	12 13 14
12		349	235	198	77	27	23 21	18	14
15	õ	295	216	1 81	71	27	17	21	15
16	3	339	200	167	64	26	21	23	1 6 1 7
1.	7	304 228	285	153	60 53	26 31	21 21	23 24	17
1 8 1 9	3	265	300 265	147 130	51	31	21	25	18 19
2	Ď	317	257	113	49	29	18	26	20
······································	8. 3	3 83	305	113	45	28	19 21	26	21 22
22	2	370	281	1 07	44	26	21	27	22
23	3	876	238	97	39 39	26 26 25	22 22	2 7 27	23 · 24
2 / 25	1 5	939 962	208 241	90 90	42	24	21	33	25
			338	89	87	23	21	37	
26 2	7	1620 1220	315	97	91	23	23	34	26 27
21	, B	824	281	109	131	23 23 27	24	32	28 29 30
25	3	645	262	113	87	27	24	39	29
3()	576	256	1 22	66	24	25 27	49	31
Meai	<u>-</u>	<u>483</u>	289	1 <u>63</u> 210	116	24 23 29	24 25 27 22.	25.4	
Meai Runoff	Tñ-	25353	17195	12960	6942	1839	1400	1513	Runoffin
Acre-F	et	_0000		, 2 000				,	Acre-Feet

Big Valley Watermaster Service Area

The Big Valley service area is located in Modoc and Lassen Counties in the vicinity of the towns of Lookout and Bieber. There are 51 water right owners in the area with total allotments of 231.03 cubic feet per second.

The Pit River is the major source of water supply for the service area. The river enters the valley north of the town of Lookout and flows southerly through the western part of the valley and out its southern end. The major place of use is about 13 miles of valley floor along the Pit River at an approximate elevation of 4,200 feet.

A schematic drawing of the Big Valley stream system is presented as Figure 3, page 18.

Water Supply

The available water supply in the Pit River as it flows through Big Valley is ordinarily adequate to satisfy all demands until about June 1. The irrigation practices in Hot Springs Valley, located about 20 miles upstream from Big Valley, have a significant effect on the available water supply in Big Valley throughout the remainder of the irrigation season. Water users in Hot Springs Valley divert most of the flow in Pit River for two- or three-week periods. Natural flow available for use in Big Valley during these periods is often less than 20 cubic feet per second. Periodic releases from channel storage reservoirs in the lower end of the valley sometimes increase the flow to as much as 200 to 300 cubic feet per second for relatively short periods. Consequently, equitable water distribution in Big Valley is very difficult to attain.

Roberts Reservoir, located on a minor tributary of the Pit River at the upper end of Big Valley above Lookout, serves as a supplemental source of water to those users in the area who are members of the Big Valley Mutual Water Company. Water from this reservoir is released into the Pit River and distributed to members of the water company along with the natural flow to which they are entitled.

Records of two stream gaging stations in the Big Valley service area are presented in Tables 6 and 7, page 17.

Method of Distribution

Most water users in the Big Valley service area irrigate on a rotation schedule by either wild flooding or by checks and borders. Large flashboard dams placed in the channel make it possible to use the large heads of water characteristic of the supply in the area. addition, some pumps are used for diversion, both in ditches and directly into sprinkler systems. The ranches which irrigate by wild flooding must use large heads of water in order to cover unleveled or high ground. Much of the runoff is recaptured for use by downstream lands, resulting in a relatively high irrigation efficiency for the valley.

The Big Valley decree (see Table 1) provides for the distribution of water from Pit River in four priority classes.

1971 Distribution

Watermaster service began May 1 in the Big Valley service area and continued until September 30. Virgil Buechler, Water Resources Technician II, was watermaster during this period.

The season began with Big Sage and West Valley Reservoirs at capacity. West Valley spilled water until July 30. The snowpack in the Warner Mountains was slightly above normal in May. A large winter-type storm hit the Big

Valley and Warner Mountain area from May 27 through June 1. This storm deposited 4 to 5 inches of precipitation in the valley and added to the existing snowpack in the Warners.

The flows in the Pit River were above normal throughout the season and peaked at 1,700 cubic feet per second on June 5. The high flows in June caused some flooding of the valley and some new crops were damaged. Surplus water allowed most users to irrigate as they wished until August 4. One exception was the Fulcher pipe users; the Gerig Dam storage was lowered while the haying operation was in process and water would not gravity-flow through the Fulcher pipe.

By August 4, Big Valley having operations were completed so the river dams were installed and an irrigation rotation started. With the available water

supply being above normal, a 100 percent irrigation was completed in 15 days on August 19. Two more full irrigations were closely regulated by the watermaster and completed by September 17. Since surplus was available, the users finished irrigating the remainder of the season as they wished.

From August 4 to 19, Roberts Reservoir water was released for use by the share-holders as follows:

Name	Acre-Feet
Eicholz Ranch Norris Gerig L. W. Kramer Merlin Kennedy D. Babcock and C. Hawkins	100 100 100 50
Total	650

BIG VALLEY WATERMASTER SERVICE AREA

1971 Daily Mean Discharge in Cubic Feet Per Second

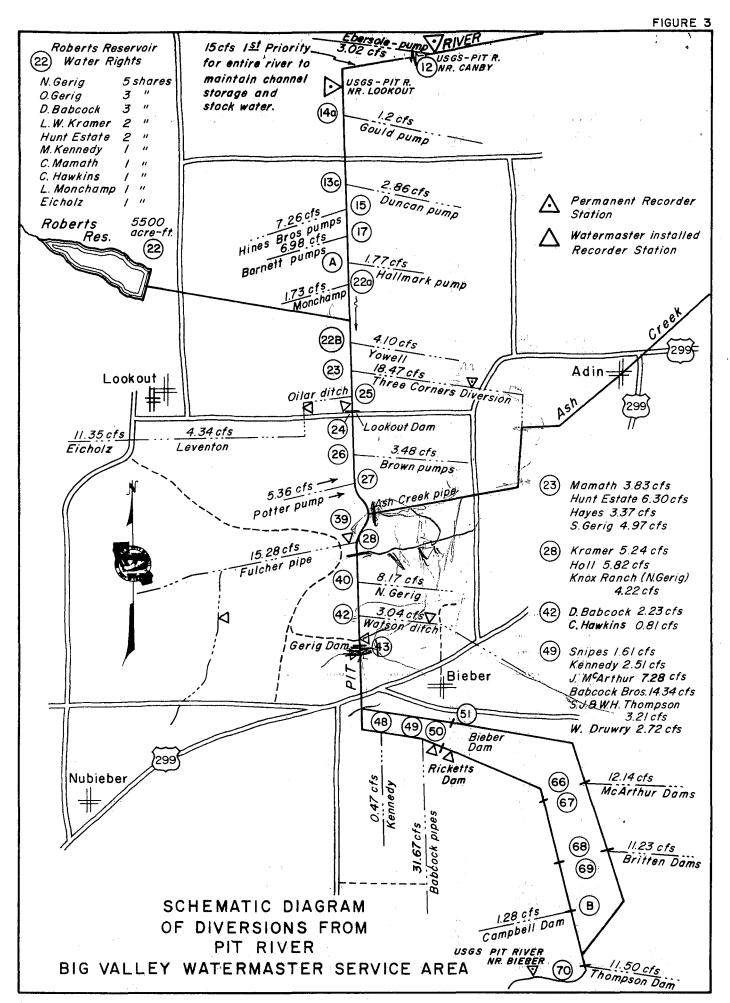
TABLE 6
PIT RIVER NEAR CANBY

Day : 1 2 3 4 5 5 5 6	March 162 217 272 254 237 218	2310 1930 1630 1420 1270	May 1150 1080 1030 1090 1370	1950 2810 3550 4140 4430 4090	1020 992 884 754 610 500	36 43 135 162 146	September 39 34 71 111 110	Day 1 2 3 4 5
6 7 8 9 10	227 227 227 215 229	1140 1110 1050 1060	1640 1660 1640 1700	3530 3080 2640 2300	430 420 410 375	155 143 142 194 165	113 159 238 219 208	6 7 8 9 10
11 12 13 14 15	228 297 479 802 899	1 04 0 997 936 889 872	1680 1610 1590 1530 1470	2040 1820 1610 1470 1330	322 324 298 199 142	123 28 50 63 69	172 159 147 130 129	11 12 13 14 15
16 17 18 19 20	980 1030 996 918 990	881 932 974 985 1000	1410 1340 1250 1160 1 0 70	1200 1060 938 800 720	180 139 139 203 158	90 104 83 110 88	127 113 136 113 111	16 17 18 19 20
21 22 23 24 25	1 25 0 1 86 0 26 0 0 3 3 3 0 3 4 7 0	1020 1010 1020 1000 988	96 0 85 1 7 75 71 6 65 6	654 594 556 556 539	178 192 148 111 76	78 77 109 90 61	108 106 110 106 107	21 22 23 24 25
26 27 28 29 30 31	4980 5540 4890 4240 3380 2770	1030 1110 1180 1230 1210	641 621 662 776 954 1260	561 715 836 884 986	65 117 115 75 57 44	42 44 51 51 44 45	104 117 139 198 262	26 27 28 29 30 31
Mean Runoff In Acre-Feet	95 580	68240	73140	103900	1 91 90	5600	7930	Mean Runoff In Acre-Feet

TABLE 7

PIT RIVER NEAR BIEBER

			FI	I KIAEK ME	AK DIEDEK			
Day ; 1 2 3 4 5	March 394 330 386 450 474	5290 4370 3720 3250 2900	: May 1720 1690 1680 1910 2200	1350 1760 2160 2810 3360	986 1050 1050 1040 816	71 66 52 45 40	: <u>September</u> 7.6 6.0 9.6 12 8.4	: <u>Day</u> 1 2 3 4 5
6 7 8 9 10	470 462 450 454 454	2640 2420 2330 2220 2170	2260 2220 2240 2380 2440	3790 4120 4100 3760 3360	615 410 688 712 525	16 16 20 19	9.2 24 12 8.8 9.2	6 7 8 9 10
11 12 13 14 15	470 682 1490 2600 2700	2210 2140 2000 1890 1750	2360 2270 2140 2030 1930	2960 2620 2290 1950 1730	474 458 366 274 257	13 12 14 17 24	12 15 16 32 71	11 12 13 14 15
16 17 18 19 20	2390 2460 2450 2230 2060	1640 1700 1810 1840 1790	1 82 0 1 71 0 1 5 9 0 1 5 1 0 1 4 1 0	1560 1420 1270 1130 1000	124 104 119 110 142	38 48 28 34 27	119 106 36 54 308	16 17 18 19 20
21 22 23 24 25	2080 2220 2860 4320 5460	1840 1920 1890 1810 1720	1310 1190 1070 963 872	879 742 658 630 605	202 176 209 182 156	19 11 7.2 5.8 5.2	293 126 100 93 104	21 22 23 24 25
26 27 28 29 30	6 850 985 0 1 05 00 91 5 0 75 4 0	1690 1700 1720 1720 1720	788 682 630 664 730 <u>921</u>	575 620 774 907 928	132 103 84 98 95	4.5 3.1 2.7 6.8 14 7.6	126 122 115 122 193	26 27 28 29 30
Runoff In Acre-Feet	180600	134500	97850	110700	23 480	1390	4500	Runoff In Acre-Feet



Burney Creek Watermaster Service Area

The Burney Creek service area is located in Shasta County near the town of Burney. There are 11 water right owners in the area with total allotments of 33.09 cubic feet per second. The source of water supply for this service area is Burney Creek, which enters the southern part of the service area and flows through Burney in a northerly direction to the Pit River. The portion of the valley served by this stream is approximately 11 miles long and two miles wide, and extends both north and south of Burney. The service area is at approximately 3,200 feet elevation.

A schematic drawing of the Burney Creek stream system is presented as Figure 4, page 21.

Water Supply

The water supply for Burney Creek comes from springs and snowmelt. Most of the watershed lies between the elevations of 4,000 and 7,500 feet on the northeast slopes of Burney Mountain. The creek normally has sufficient water to supply all demands until about the middle of June. The supply then gradually decreases until the end of July. For the remainder of the irrigation season runoff from perennial springs keeps the flow nearly constant at approximately 40 percent of allotments.

The daily mean discharge of Burney Creek near Burney is presented in Table 8. The stream gaging station on Burney Creek is located below four points of diversion; consequently, the records do not show all of the available water supply of the creek.

Water Supply

The Burney Creek decree (see Table 1) sets forth a rotation schedule of distribution. The water users, however, have found it more beneficial to

irrigate on a continuous-flow basis (one priority class plus surplus allotments), which is now normal practice. The water allotted to the Greer-Cornaz Ditch is distributed in accordance with supplemental court decrees.

Water is diverted from Burney Creek, in most cases by means of low diversion dams, into ditches which convey it to the place of use. Lateral ditches are then used to irrigate the land.

Method of Distribution

Watermaster service began June 1 in the Burney Creek service area and continued until September 30. Virgil D. Buechler, Water Resources Technician II, was watermaster during this period.

All allotments were distributed on a continuous-flow basis. This practice, rather than that of rotation as called for in the decree, has been used for many years by agreement of the water right owners.

The Pierpont Ranch, lowest decreed user on Burney Creek, did not irrigate during the 1971 season. Therefore, except for stockwater delivered to the ranch, its water rights were apportioned among the other users on the creek.

The available water supply for the 1971 irrigation season was above normal. Surplus flow was available to all users until early August. All diversions were then regulated to 100 percent of first priority allotments. The supply then remained at 100 percent through the remainder of the season.

1971 Distribution

The Greer-Cornaz ditch was cleaned from Diversion 7A to Diversion 8. Also, a concrete headwall and headgates were installed at the head of this ditch.

Forest Publishers Products installed a constructed new diversion dam and headgate at Diver- Route 299. sion 1. An earth dam with headgate was

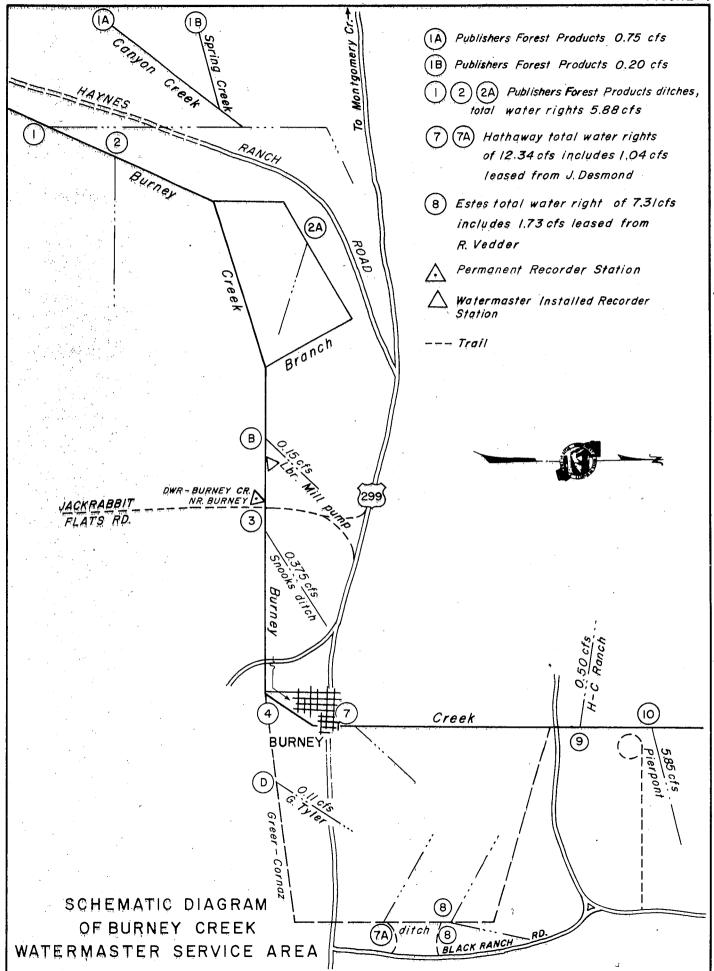
constructed across Canyon Creek at State Route 299.

BURNEY CREEK WATERMASTER SERVICE AREA

1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 8
BURNEY CREEK NEAR BURNEY

Day : 1 2 3 4 5 6 7 8 9 10	March 58 555 49 46 455 46	253 249 247 248 257 283 281 269	: May : 211 214 318 366 306 265 260 274 252	June 198 160 138 133 132 123 119 117 110	73 64 59 55 52 50 48 47 45	23 23 21 20 21 20 18 18	: September 18 16 17 18 18 19 20 21 18	Day 1 2 3 4 5 6 7 8 9 10
10	46	283 374	240	1 03	. 44	19	18	10
11 12 13 14 15	61 307 288 207 154	288 255 262 258 269	240 253 260 232 207	98 93 91 85 78	44 43 42 39 36	19 17 17 16 16	20 21 19 17 17	11 12 13 14 15
16 17 18 19 20	133 128 110 106 105	276 294 234 216 234	189 165 147 137 137	75 72 75 71 68	33 32 33 33 32	17 18 17 17 18	18 18 18 18	16 17 18 19 20
21 22 23 24 25	109 123 362 466 443	2 05 1 82 1 71 1 62 1 57	134 131 134 137 142	67 61 58 51 53	31 29 27 27 27	18 19 20 20 20	17 17 16 16 18	21 22 23 24 25
26 27 28 29 30 31	911 586 412 337 328 273	164 172 179 196 211	213 189 219 167 196 192	1 06 2 01 1 4 7 9 7 8 0	26 25 25 23 21 22	19 20 19 19 19	25 27 27 47 57	26 27 28 29 30 31
Mean Runoff In Acre-Feet	12787	14140	12946	6069	2354	1162	1256	Mean Runoff In Acre-Feet



Butte Creek Watermaster Service Area

The Butte Creek service area is located in Butte County southeast of the City of Chico. There are 33 water right owners in the area with total allotments of 422.30 cubic feet per second. Butte Creek is the major source of water supply. The watermaster service area extends for about 11 miles along Butte Creek, commencing approximately 4 miles east of Chico and extending downstream to the crossing of Western Canal. It contains about 20,000 acres of valley floor lands at an average elevation of 150 feet.

A schematic drawing of the Butte Creek stream system is presented as Figure 4, page 27.

Water Supply

Butte Creek, above the watermaster service area, drains approximately 150 square miles of the western slope of the Sierra Nevada Mountains in the northeasterly portion of Butte County. The maximum elevation in the watershed is about 7,000 feet.

Snowmelt normally produces sustained high flows in the creek until about the end of June, after which perennial springs continue to produce flows of more than 40 cubic feet per second. Additional water is imported for distribution from the West Branch Feather River by means of the Hendricks (Toadtown) Canal through De Sabla Reservoir and Powerhouse into Butte Creek.

Records of the daily mean discharge at stream gaging stations in the Butte Creek service area are presented in Tables 9, 10, and 11, pages 24 and 25.

Method of Distribution

Water is diverted from Butte Creek by pumping and by gravity diversions. Parrott Investment Company, M & T Inc.,

Dayton Mutual Water Company, and Durham Mutual Water Company divert relatively large amounts of water by gravity into ditches leading to their individual distribution systems. Various methods of irrigation are in general practice. These include contour checks, strip or border checks, basin checks, furrows, wild flooding, and sprinklers. The use of sprinklers has increased in popularity with the past few years, especially for use on orchards.

Water diverted to Butte Creek from the West Branch Feather River through the Hendricks Canal and De Sabla Powerhouse at times causes wide fluctuation in the Battle Creek flow. In accordance with "Memorandum and Order" entered May 10, 1949, by the Superior Court of Butte County, water users below Parrott Dam (where the imported water is rediverted) must be provided their natural flow allotments at all times without undue fluctuation caused by intermittent presence of imported water. For the past several years PG&E has maintained reasonably steady releases.

The Butte Creek decree (see Table 1) established three priority classes for summer distribution purposes and, in addition, defined two surplus flow allotments.

1971 Distribution

Watermaster service began May 1 in the Butte Creek service area and continued until September 30. John M. Miller, Water Resources Technician II, was watermaster during this period.

The available water supply for the 1971 irrigation season on Butte Creek was one of the best on record. Some water was available for the higher surplus class users throughout the season. This is an extremely unusual situation.

BUTTE CREEK WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 9
BUTTE CREEK NEAR CHICO ,

			DOTTE	OKEEK MEAK	011100			
Day :	March	: Aprîl	: May :	June :	July :	August	: September	: Day
1	3 35	943	584	498	272 254	192	155	1
2	323 321	872 840	598 612	468 444	254 268	192 192	1 61 1 5 5	. 3
2 3 4 5	323	81 6	605	428	259	189	151	2 3 4 5
5	313	816	612	422	254	186	151	5
6 7	306	832	605	417	254	186	151	6 7 8 9 10
	300	824	605	422	250	182	151	7
8	296 294	784 752	633 612	422 422	238 242	1 86 1 82	144 144	8
9 10	294 292	988	633	422	242	182	144	10
	316	816	672	422	234	182	1 41	11
11 12	21 90	760	728	406	226	178	1 4 4	12
13	21 90 1 530	752	728	390	218	178	1 41	13
14	921	728	704	380	210	178	1 41	14
15	770	744	680	370	210	175	138	15
16	690	744	664	365	214	175	135	16
17	693	808	612	355	206	172	138	17 18
18 19	621 584	720 672	577 564	350 340	206 210	172 172	135 138	19
20	560	680	564	335	206	175	141	20
21	550	61.9	564	325	206	175	129	21
22	541	605	522	315	203	175	1 26	22
23	1030	577	534	3 05	200	175	130	23 24
24	1160	564	534	300	196	175	1 42	24
25	1680	546	552	290	200	168	1 45	25
26	4380	534	591	345	196	168	150	26 27
27	21 60 1 5 7 0	516 534	552 564	400 325	196 196	161 158	1 71 1 6 4	28
28 29	1320	552	528	300	196	155	161	29
30	1200	570	516	290	196	151	211	30
30 31	1060		486		<u>192</u> <u>221</u>	135		31
Mean	924		598	376	221	175	148	Mean Runoff In
Runoff in Acre-Feet	56790	42660	36760	22360	13590	10750	87 80	Acre-Feet

BUTTE CREEK WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 10 Butte Creek Near Durham

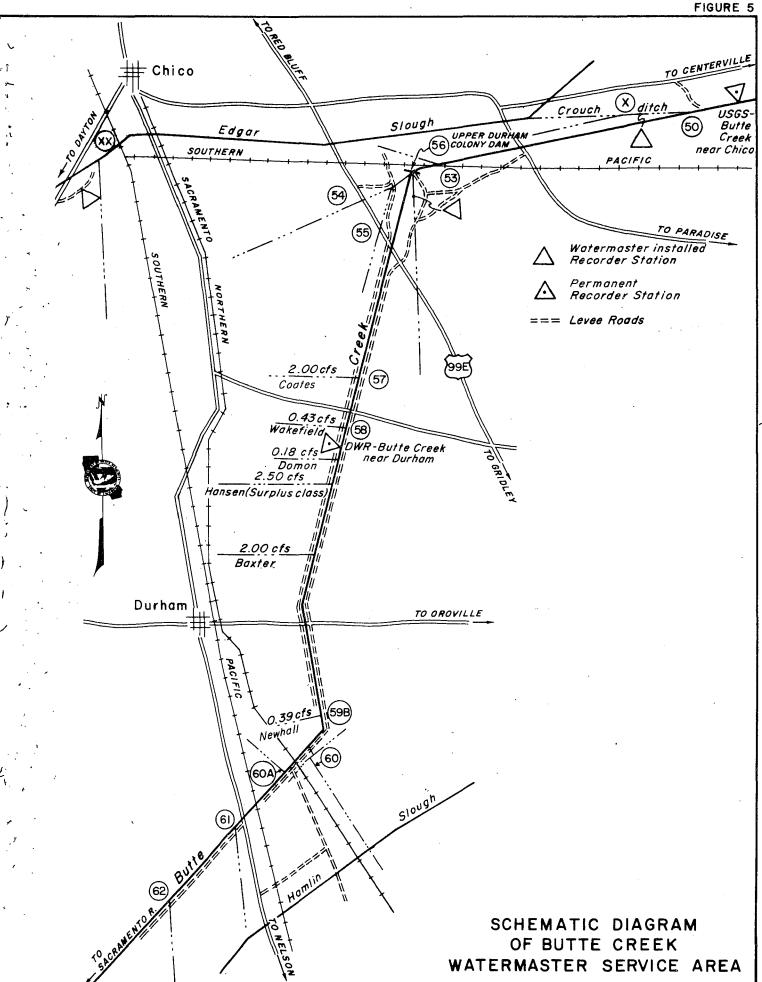
	Day	3	March		April	1	May	;	June	;	July	;	Augușt	;	Septembe	<u>: 1</u>	Day
	1 2 3 4 5		325 318 313 314 306		899 836 807 784 772	,	41 5 407 421 462 460		349 316 290 269 268		93 80 92 80 78	:	19 19 19 47 61		26 43 35 37 50		1 2 3 4 5
	6 7 8 9 10		301 299 288 283 278	. f	766 755 735 714 806		443 440 473 462 469		260 265 256 246 247		90 1 03 83 79 84		62 41 43 55 47		77 62 48 21 16		6 7 8 9 1 0
	11 12 13 14 15		285 1850 1830 950 765		766 709 685 660 659		494 530 528 509 497		245 234 237 227 191		76 77 53 42 38		32 26 24 23 20		16 15 16 18 18		11 12 13 14 15
	16 17 18 19 20		652 634 549 482 453		651 683 631 595 603		487 461 446 430 425		169 159 156 151 133		52 46 45 41 40		21 14 14 16 30		18 18 18 18		16 17 18 19 20
	21 22 23 24 25		435 421 625 1030 1070		552 540 485 442 456		425 382 391 389 387		122 108 103 101 97		35 36 33 39 40		42 40 34 23 24		17 16 15 69 124		21 22 23 24 25
	26 27 28 29 30	ŧ	31 90 25 60 1 620 1 2 80 1 1 3 0		448 425 398 400 412		405 376 396 366 368 339		1 45 2 45 1 43 1 1 8 1 0 4		32 26 22 22 22 22		21 20 18 19 30 32		133 164 155 151 243	¢	26 27 28 29 30 31
T	vean of f	υ τ Γι - τ τ ι	1 01 0 833	स ने जर य सम्ब	<u> [635]</u>		- 339 - 434		<u></u>	ਚ ਹਾਰਾ ਹ ਰਾਜ ਹਾਰ	20 54.8		30.2		<u>5</u> 5.8		Mean
Acre	off li e–Fee	n t	51265		37833		26743		11810		3370		1857		3320		Runoff In Acre-Feet

TABLE 11
TOADTOWN CANAL ABOVE BUTTE CANAL

						TOADT	OMN	CANA	AL ABUY	VE I	BUTTE (CANA	_				
	Day	;	March	;	April .	; M	аy	1	June	I	July	:	Augus t	:	Septembe	r	: Day
. '	1 2 3 4 5		98 96 95 96 93		125 124 122 121 114	1 1 1	14 16 16 17 21		111 108 108 110 113		89 98 110 110 110	•	92 92 92 90 89		67 65 64 63 65		1 2 3 4 5
	6 7 8 9 10		91 91 89 89 88		114 114 119 117 119	1 1 1	17 15 21 17 14		113 110 109 110 110		110 110 110 109 106		89 88 87 87 86		65 65 64 63 62		6 7 8 9 10
	11 12 13 14 15		98 118 112 116 109		114 116 114 114 113	1	14 14 91 14 13		108 107 105 104 106		1 03 93 91 91 95		86 86 86 85 79		62 63 63 61 60		11 12 13 14 15
	16 17 18 19 20		112 116 119 114 112		114 116 118 114 114	1	09 11 12 14 09		110 109 109 109 109		95 93 95 96		78 78 77 76 76		60 63 63 65 65		16 17 18 19 20
	21 22 23 24 25		112 111 116 107 126	•	116 114 114 113 113	1 1	10 10 09 10 10		1 09 1 09 1 09 1 07 1 08		95 92 93 92 95		75 74 73 69 74		47 37 62 66 67		21 22 23 24 25
	26 27 28 29 30 31		122 124 127 121 120 120		110 110 113 112 114	1 1	10 11 11 11 12 11		112 111 112 112 108	:	95 93 93 93 92 92		76 69 69 64 64 44		69 77 71 77 98		26 27 28 29 30 31
777	Mean		7:108		7716	·	12.				97_	9	<u>44</u> <u>7</u> 9,0		64 <u>.6</u> _		Runoff In
	off in e⊷Feet	, was	6660	64	6870	69	10		6500		6020		4860		3850		Runott in Acre-Feet

		• .	•
Diversion $\#$	Water Right Owner	Amount in cfs	Remarks
Butte Creek			
50 X XX	M. & T. Incorporated M. & T. Incorporated Parrott Investment Company Parrott Investment Company Taylor MC CLAIN, BENSON, Dayton Mutual Water Company Dayton Mutual Water Company	53.33 25.00 53.33 25.00 , & AL 3.00 16.00 / 3.33 /	Imported water* Surplus class Imported water* Surplus class Fitts of Police of the Police of Police of the Police
	*Water imported by PG&E from William Hendricks Canal and released conveyance losses.		
53	U. S. Department of Agricultur		First Paronity of
54	Patrick Levy Parnick 3/1-6/30 Smith Towns and Jayred	4.4453.33 1.89 0.555 1.115	SET TO THE PORT OF
55 🎍	Camenzind Brothers 3/1-430	5.00 3.11 6.50	Appencasion Pelasist
56	Durham Mutual Water Company Parrott Investment Company Carlson Bell Domom Brothers Logan Vernoga Konyn - Amerio Bebich Setka	(some	
	Total	51.25	La policie de la companya della comp
60 GO 60A	Newhall Land & Farming Compan Newhall Land & Farming Compan Phillips "3/5	6.00 y .15 6.75	-SECOND PRIORITY -THIRD PRIORITY Surplus class PLICATION PERMIT FIRST PRIORITY
61	Gorrill Land Company (see Hamlin Slough) Gonnice Manch 15 10 Ju	1.00 7 20.70 4E 15 75.00	-THIRD PILICATT
62	White MEAD, M'ALISTER AND RYON		THIRD PRICE !!
Hamlin Slough			
	Newhall Land & Farming Compan Gorrill Land Company	y 16.60 21.70(j)	· .
(a)	(Total diversions from Butte exceed 21.70 cfs).	Creek and Hamlin SI	

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Cow Creek Watermaster Service Area

The Cow Creek service area is located in Shasta County in the foothills east of Redding. There are 90 water right owners in the area with total allotments of 56.367 cubic feet per second. The major streams in this area are: North Cow Creek (commonly called Little Cow Creek), Cedar Creek (a tributary to North Cow), Oak Run Creek, and Clover Creek. These creeks, which are all tributaries of Cow Creek, flow in a westerly or southwesterly direction through narrow valleys joining Cow Creek near the town of Palo Cedro. service area is located in the narrow valleys along the several creeks and consists of small parcels separated by brush-covered hills in the lower elevations. There are dense coniferous forests in the higher regions. The entire area is about 25 miles long by 10 miles wide and varies in elevation between about 500 and 4,000 feet.

A schematic drawing of each major stream system in the Cow Creek service area is presented as Figures 6 through 6c, pages 32 through 35.

Water Supply

Water supply for this service area is derived mostly from springs and seepage, with some early snowmelt runoff. A considerable portion of the watershed consists primarily of low brushy hills which do not accumulate a heavy snowpack. Relatively large amounts of precipitation during the winter normally produce substantial springs and seepage that flow throughout the irrigation season.

Cedar Creek flow is usually sufficient to supply all allotments until about July 15. Thereafter, it steadily decreases throughout the remainder of the season.

The flow of North Cow Creek in average years is adequate to supply nearly 100 percent of all allotments. In dry years it is necessary to reduce allotments up to 50 percent during the latter part of the summer.

The flow of Oak Run Creek is augmented by a first priority allotment of five cubic feet per second of imported water from the North Cow Creek watershed. The combined flow is generally adequate to supply all allotments throughout the season.

Clover Creek produces enough water to meet nearly all allotments throughout the season. In dry years, diversions may be reduced to about 70 percent of decreed allotments.

Records of the daily mean discharge of North Cow Creek near Ingot are presented in Table 12. Numerous additional gaging stations were maintained in various diversion ditches.

Method of Distribution

Water in the Cow Creek service area is used for domestic and stockwatering purposes and for irrigation of meadow hay, alfalfa, small orchards, and vegetable gardens. The alfalfa and hay lands are irrigated primarily by wild flooding, although some sprinklers are used. Furrows are used for irrigating gardens, and basins or checks and sprinklers are used for orchards. Much of the water applied is lost by surface runoff or by deep percolation, some of which returns to the creeks and thereby becomes available for rediversion downstream.

Only one priority allotment was provided in each of the Cow Creek service area decrees (see Table 1) except for the Oak Run Creek decree which contains a surplus allotment.

1971 Distribution

Watermaster service began June 1 in the Cow Creek service area and continued until September 30. Ross P. Rogers, Water Resources Engineering Associate, was watermaster during this period.

The available water supply for the Cow Creek service area was outstanding. An unusually late spring, combined with considerable rainfall and an excellent snowpack at higher elevations, produced the high sustained flows.

<u>Cedar Creek.</u> Cedar Creek consistently has the lowest water supply to water rights ratio in the Cow Creek service area. Even in years of adequate supply on nearby streams, the allotments on Cedar Creek are usually rationed severely.

However, because several water right owners did not use their full entitlements during the 1971 season, all

other users received an adequate supply throughout the summer.

North Cow Creek was one of the best on record. Above-normal spring rainfall contributed heavily to replenishment of the underground reservoirs which provide the major source of supply to the headwaters of the creek in the summer. Surplus water was available throughout the season.

<u>Oak Run Creek.</u> The available water supply in Oak Run Creek was sufficient to supply all demands throughout the season.

Water was available for irrigation of riparian lands downstream from the adjudicated area throughout the summer. This is unusual.

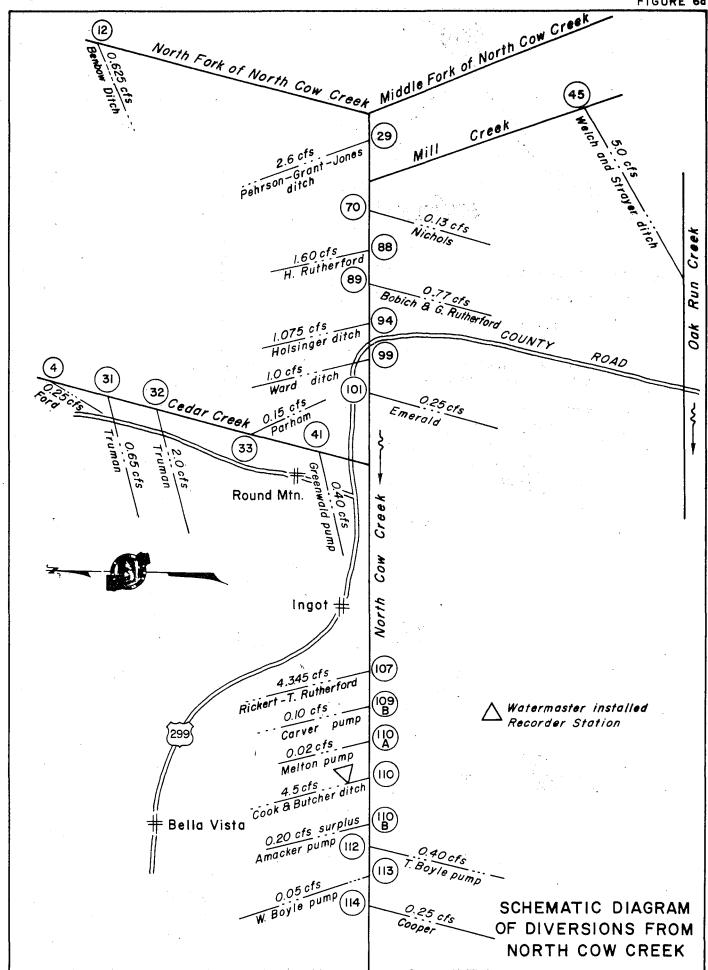
Clover Creek. The available water supply in Clover Creek was sufficient to supply all demands. Surplus water was available throughout the season.

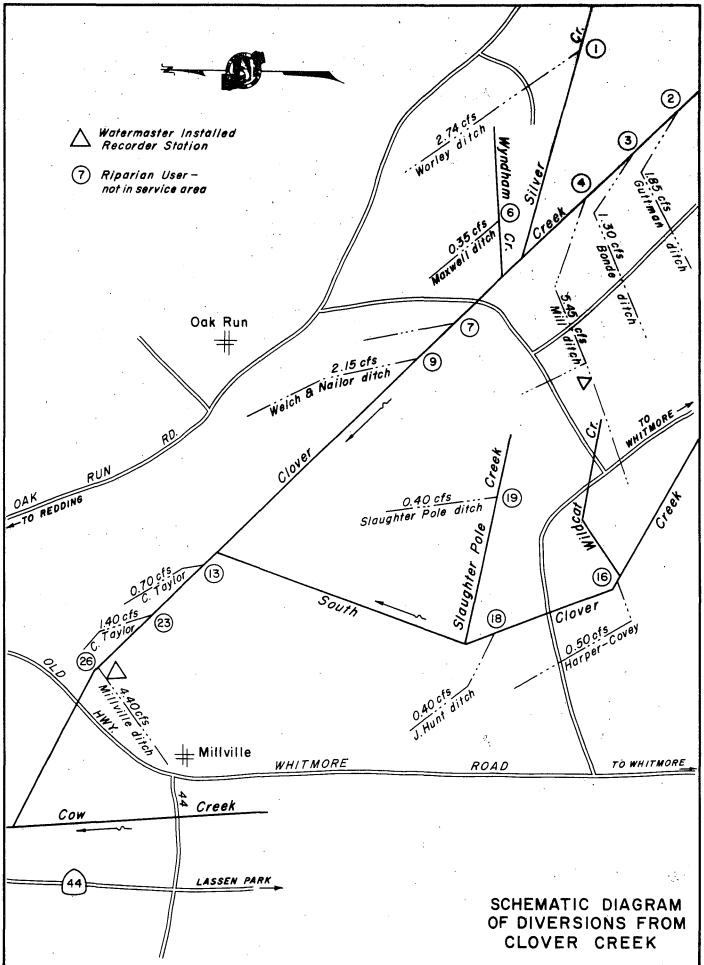
COW CREEK WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 12 NORTH COW CREEK NEAR INGOT

	D	ау	1.	N	are	h.		A	pr	1	•		Ma	y_		. 17 .	Juli	ę	1		цlу	.	;	Aug	gus	:	:	Septemb	er	;	Day
		2						.:				• •		•			94 68 58	*			,			12	4 2 1			10 9.5 10			1 2 3
	,	4 5															58 62 60				٠.			11	 			9,5 8,5			4 5
		6 7			٠.											ż	57 57					:		12	2			8.5 8.0			6 7
		8 9 10								7 · 5							56 54 56	•						12 12	2			8,0 8.5 8.0	•		8 9 10
	٠	11		:									:		•	•	50 48 45 43							-10 10)			8,0 7,5 7.5			11 12
		14		•										•			43				•				9,5			7.0 6.5			13 14 15
		16 17		•							•						39 38						,	- 10	5			5,6 5,2 5,2			16 17
		19						•					; ·				37 35 32							ģ	9.5 9.5 9.5			6.0 6.5			18 19 20
		21 22															31 29) 9.5 3.5			7.0 7.0 7.0			21 22 23 24 25
		22 23 24 25	•														28 27 27	**				:		. E	3.0			7.0 8.5			24 25
		26 27 28																						7	7.5			17 16			26 27
		29 30	• • • •																		14* 14 14			· 6	3.5			14 25 28			26 27 28 29 30
7 7 8 7	Me	31 ān T	र समृद् सम्बद्ध	कर ह संक्रा	इंट्रिकेट सामाणि	्र जन्म स्वर्	ក្រក ក្រក	हिन इ.स.	हुन र इ.स.च	्र जुला स्टब्स	ੱ ਜੀਸ਼ਜ਼ ਜਿਸ਼ਸ਼	ਭਾਵਾਵ ਜ਼ਿਲ੍ਹਾ	च्या चित्र	ताना : एक	त्राम्य सर्वेता	ল স জন্ম	746		नायाः संस्थ	- स्व वस्त्र	14 14.	֖֓֞֞֞֞֜֞֞֞֓֓֓֓֞֟֞֜֟֟֞֓֓֓֟֟֜֟֝֟֟֝֟֝֟֝֟֝֟֝֟֝֟֝ ֚	त्र स्वर	11 10	֓֞֞֞֞֞֞֞֞֓֓֓֓֞֞֞֓֓֓֓֞֟֞֟֝֞֟֞֓֓֓֓֓֓֓֟֝֟֝֓֓֓֟֝֓֓֓֓֓֟֝֓֓֓֓֡֝֝֡֡֝	ine.	संस्		जिल्ला जिल्ला	 	31 Mean
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Beginning of Record End of Record





Digger Creek Watermaster Service Area

78 ANESE

The Digger Creek service area is located in southeastern Shasta County and northeastern Tehama County. There are 38 water right owners in the area with total allotments of 23.225 cubic feet per second.

Digger Creek forms a portion of the boundary line between Shasta and Tehama Counties. It drains an area of approximately 45 square miles on the western slopes of mountains situated immediately west of Lassen National Park. The creek flows in a westerly direction through the town of Manton to its confluence with North Fork Battle Creek. Manton, the only community in the area, is located approximately 40 miles northeast of Red Bluff.

A schematic drawing of the Digger Creek stream system is presented as Figure 7, page 39.

Water Supply

Precipitation, occurring principally in the winter months, is typical of Northern California foothill areas. Snowmelt contributes to the early runoff but the summer streamflow is primarily from springs. In average runoff years there is sufficient flow in Digger Creek, with careful regulation, to satisfy all decreed allotments throughout the entire irrigation season. However, serious deficiencies occur in dry years.

The estimated daily mean discharge of Digger Creek below South Fork Branch is presented in Table 13, page 38.

<u>Method of Distribution</u>

There are four court decrees (see Table 1) on Digger Creek. These decrees, in effect, have divided the water rights

on the creek into two groups, the upper users and the lower users. The three upper users irrigate lands adjoining the stream so that all water not consumptively used returns to Digger Creek. The lower users are located within a five-square-mile area. Very little runoff from the lower users returns to the creek.

The three upper users' water rights are absolute and not correlative to the lower users; therefore, allotments are not cut proportionally as Digger Creek flows decrease. Since the lower users have to stand all deficiencies, their allotments are cut proportionally as the flow decreases. In effect, the upper users have first priority allotments and the lower users have second priority allotments.

Irrigation is accomplished principally by wild flooding, although border checks and sprinklers are used on a few fields. Small diversion dams are placed in the stream channel to divert water into ditches for conveyance to the fields.

1971 Distribution

Watermaster service began July 1 in the Digger Creek service area and continued until September 30. Ross P. Rogers, Water Resources Engineering Associate, was watermaster during this period.

The available water supply in Digger Creek was outstanding. During the usually critical months of August and September all water users received 100 percent or more of their allotments. In addition, surplus quantities ranging from 10 to 25 percent of the total adjudicated water rights flowed unused from the service area.

DIGGER CREEK WATERMASTER SERVICE AREA

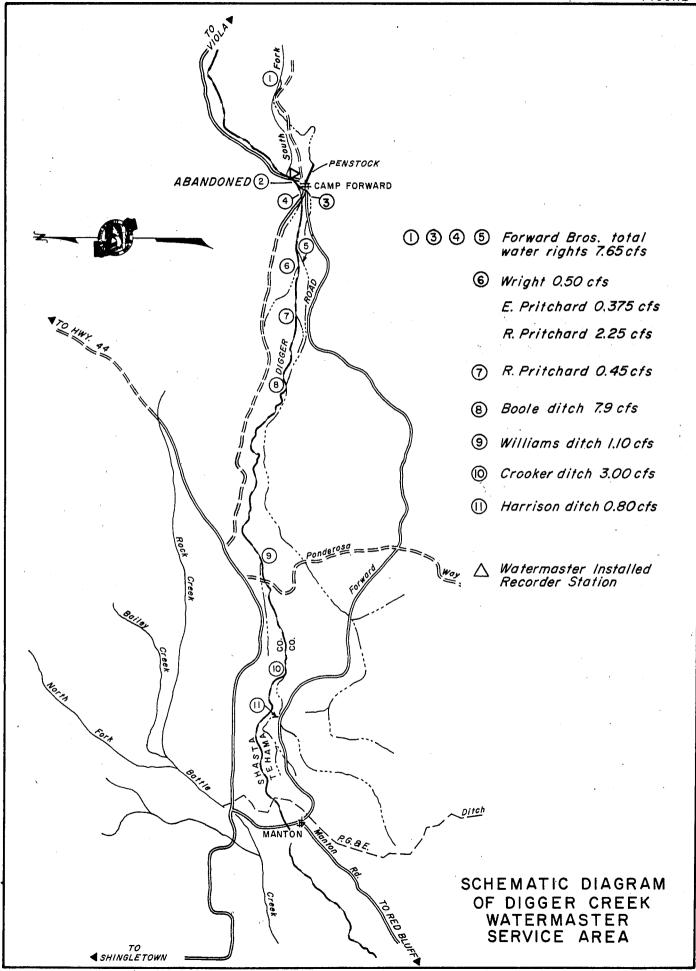
1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 13 DIGGER CREEK BELOW SOUTH FORK BRANCH

Day :	March :	April	: May	: June	<u>:</u>	July :	August	: September	: Day
1 2 3	,		,,			40E 40E 40E	30* 29 29 29 29	24 24 24	1 2
3 4 5						40E	29 29	23	3 4 5
						40E 40E		23	
6 7 8 9 10						40E	29 29 29 29 29	23 23 23 22 22	6 7 8 9 10
9						40E 40E	29 29	23 22	8 9
						40E			
11 12						4 0E 3 5 E	28 28	. 22 . 21	11 12
13 14						35E 35E	28 28 28 28 28	. 22 21 21 21 21 21	11 12 13 14 15
1 4 1 5						35 E			
16 17						35E 35E	28 27 27 26 26	21 20 20	16 17
16 17 18 19 20						35E 35E	27	20 20	18 19 20
20						35E 35E	26 26	20	20
21						35E 30E	26	20 20	21
21 22 23 24 25						30E	26	20	21 22 23 24 25
24 25						30E 30E	26 26 26 25 25	20 21	24 25
26						30E		23	26
27 28						30E 30E	25 25	23 23 22	28
26 27 28 29 30 31						3 OE 3 O E	25 24	24. 23	29 30
31 Me an					-	30E 35E	25 25 25 25 24 24	21.8	26 27 28 29 30 31
Runoffin					·	21 60E	1670	1300	KUNDII IN
Acre-Feet						-	• •	· -	Acre-Feet

E Estimated * Beginning of Record





French Creek Watermaster Service Area

The French Creek service area is located in western Siskiyou County near the town of Etna in Scott Valley. There are 27 water right owners in the service area with total allotments of 30.59 cubic feet per second. The major sources of water supply are French Creek, Miners Creek, and North Fork French Creek. French Creek flows in a northeasterly direction through the central part of the service area. Miners Creek begins east of the headwaters of French Creek and flows in a northerly direction. joining French Creek about 3 miles above its confluence with Scott River. North Fork French Creek begins north of the headwaters of French Creek and flows easterly, joining French Creek one mile upstream from the confluence with Miners Creek.

The service area encompasses the entire agricultural area within the French Creek Basin, and some additional lands along the west side of the Scott River near the town of Etna. The service area is about one-half mile wide and five miles long, with the main axis and drainage running from south to north. Elevations of the agricultural area range from about 3,200 feet at the south to about 2,800 feet at the confluence of French Creek and Scott River.

A schematic drawing of the French Creek stream system is presented as Figure 8, page 43.

Water Supply

The water supply is derived from snowmelt runoff, springs and seepage, and occasional summer thundershowers.

The watershed of French Creek contains about 32 square miles of heavily forested, steep, mountainous terrain of the easterly slopes of the Salmon Mountains. It varies in elevation from about 7,200 feet along its west rim to

about 3,200 feet at the foot of the slopes bordering French Creek Valley. Snowmelt runoff is normally sufficient to supply all demands until about the middle of July. The daily mean discharge of Duck Lake Creek, a tributary, is presented in Table 14, page 40.

Method of Distribution

Irrigation is accomplished primarily by wild flooding of permanent pasture and alfalfa fields. Water is conveyed by ditches and laterals to the place of use.

The French Creek decree (see Table 1) provides three separate areas of distribution within the service area and establishes the following number of priority classes for these areas: French Creek, including Horse Range Creek, Paynes Lake Creek, and Duck Lake Creek - seven; Miners Creek - three; North Fork French Creek - three.

1971 Distribution

Watermaster service began in the French Creek service area on July 1 and continued until September 30. John A. Nolan, Water Resources Technician II, was watermaster during this period.

Because watermaster service was initiated during the 1969 season, little data is available for a water supply comparison with past years. However, it is the opinion of most ranchers in the area that an above-average water year condition prevailed.

Upper third priority allotments were shut off on August 11 to satisfy the upper second priority rights. However, downstream third priority allotments were available throughout the remainder of the season in decreasing quantities.

Downstream first, second, and third priority allotments can rely on a more

dependable water supply than those of Fork French Creek, all tributaries to the upper users due to inflow from Paynes French Creek below the upper users. Lake Creek, Horse Range Creek, and North

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FRENCH CREEK WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second TABLE 14

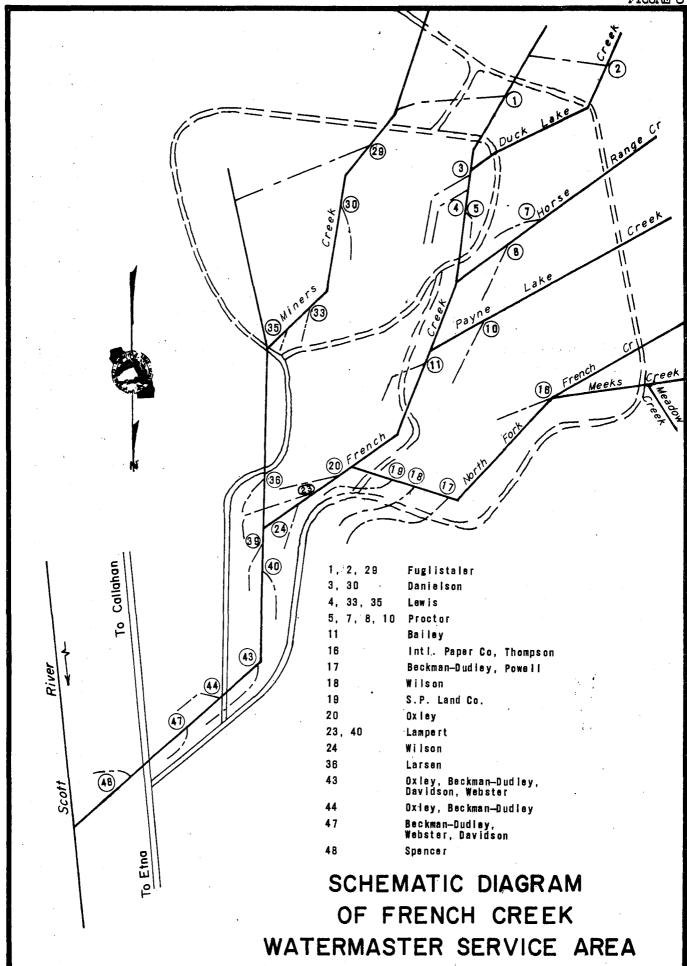
DUCK LAKE CREEK TRIBUTARY TO FRENCH CREEK

	Da	y : 1 2 3 4 5	,	Mar	ch	•		\ pr	11	;		<u>Мау</u> 17*	•		21 21 23 25 27	:	July 17 16 15 15	:	6.4 6.2 6.2 6.0 5.8,	<u>*t</u>	:	Sept	8	oe r			Day 1 2 3 4 5	•			
	1	6 7 8 9 0		ì					- 4 -	•		16 18 25 24 25			28 31 31 30 32		14 13 13 13		5.8 5.8 5.5 5.3		,	22 22 22 22 22 22 22 22 22 22 22 22 22	6 . 5 . 5 . 3				6 7 8 8 10	' : 			
	1:								•	- 1		28 31 30 27 27			30 29 29 28 28		12 11 11 11 11		4.9 4.9 4.6 4.2 3.8			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2.2				11 12 13 14 15	, , , , , , , , , , , , , , , , , , ,		. *;	: (
•	1 1 1 1 2	7 8 9			€							24 21 20 22 22		19	29 29 30 29 29		10 10 10 9.6 11		3.4 3.0 3.0 3.0 2.8				2.2				16 17 18 19 20) 	3	٠	•
	2 2 2 2			.,							``	20 20 24 28 30	· · · · · · · · · · · · · · · · · · ·	·.	28 28 27 24 30		11 10 9.3 8.7 8.2	•	2.8 2.8 2.8 2.8 2.8			22	2.0		,	· · · · · · · · · · · · · · · · · · ·	21 22 23 24 25	i la		· · ·	
	2 2 2 2 3 3	8 9 0 1						:				28 25 30 32 28 23			32 24 20 18 17	: 34	7.4 6.9 6.9 6.6		2.6 2.6 2.5 2.8 3.1		· · ·		2.3			بدند	26 27 28 29 30 31), 		· · · · · · · · · · · · · · · · · · ·	:
Řűi Acı	Mea ioff re-F	์ ไท้		 -	. +- +-	,				7777	1,	24. 32 0	<u>6</u> ,		<u>26.9</u> 16,00				4 <u>.1</u> . 250	·		139	3.			Run	Mean of f e-Fe	Tñ	£ * *	1,7	

^{*} Beginning of Record - A Company A Company E Company A Company A

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Le mops, Figures 9 through 96, show the Creek service area and strong broken, in Cluding brokensof she liver ion of the upper and Hat Creek Watermaster Service Area lower user groups.

The Hat Creek service area is located in the eastern part of Shasta County north of Lassen Volcanic National Park. There are 48 water right owners in the area with total allotments of 135.545 cubic feet per second. Hat Creek, which flows in a norther ly direction through the area, is the only source of water supply in the service area. The place of use is Hat Creek . Valley, which is approximately 20 miles long and two miles wide. The valley extends northward from a point about three miles south of the town of Old Station, to the confluence of Rising River and Hat Creek. The irrigable lands, which consist primarily of volcanic ash, are interlaced with large outcroppings of volcanic rocks.

Schematic drawings for both the upper and lower users' diversion systems from Hat creek are presented as Figures 9 through 95, pages 47 through 49.

Mater Supply

The water supply of Hat Creek is derived from snowmelt runoff on Mount Lassen and from large springs. Snowmelt normally creates a high flow during May and June; however, the substantial portion of supply during the summer months comes from large springs which decrease only slightly in output. Only after a series of dry years does the flow of these springs fall much below 75 percent of total allotments.

A record of the daily mean discharge of Hat Creek near the town of Hat Creek is presented in Table 15, page 46.

Method of Distribution

The Hat Creek decree (see Table 1) divides the water rights on Hat Creek into two groups (upper users and lower users) who use the water on 10-day rotation schedules, with one priority

class for each group as the basis for distribution. Therefore, a complete reregulation of all diversions occurs every 10 days, alternating an irrigation supply to one group and a minimum flow (stockwater) to the other group.

Most irrigation in the area is accomplished by wild flooding. Large heads of water are used to cover the land rapidly, thereby preventing excessive loss from percolation in the extremely porous soil. Diversion dams constructed across the creek serve to divert water into large ditches. The fields, many of which have checks and borders, are then flooded from the main diversion ditch or from laterals. A few domestic rights are met by pumping directly from Hat Creek.

1971 Distribution

Watermaster service began/May 1 in the Hat Creek service area and continued until September 30. Virgil Buechler, Water Resources Technician II, was watermaster during this period.

The available water supply for Hat Creek was extremely good. The snowpack on Lasser Peak was normal. The springs tributary to Hat Creek were flowing above normal. The high spring flows continued through the summer. The flow in Hat Creek near Old Station was in excess of 152 cubic feet per second throughout the summer.

The usual 10-day rotation schedule was not initiated until July 30. During this rotation, the lower users were regulated to 100 percent of their allotments (one priority). The flows in Hat Creek then remained between 177 and 152 cubic feet per second. This resulted in a close regulation every 10 days, but the regulations were always on a 100 percent basis.

Special Occur/rences

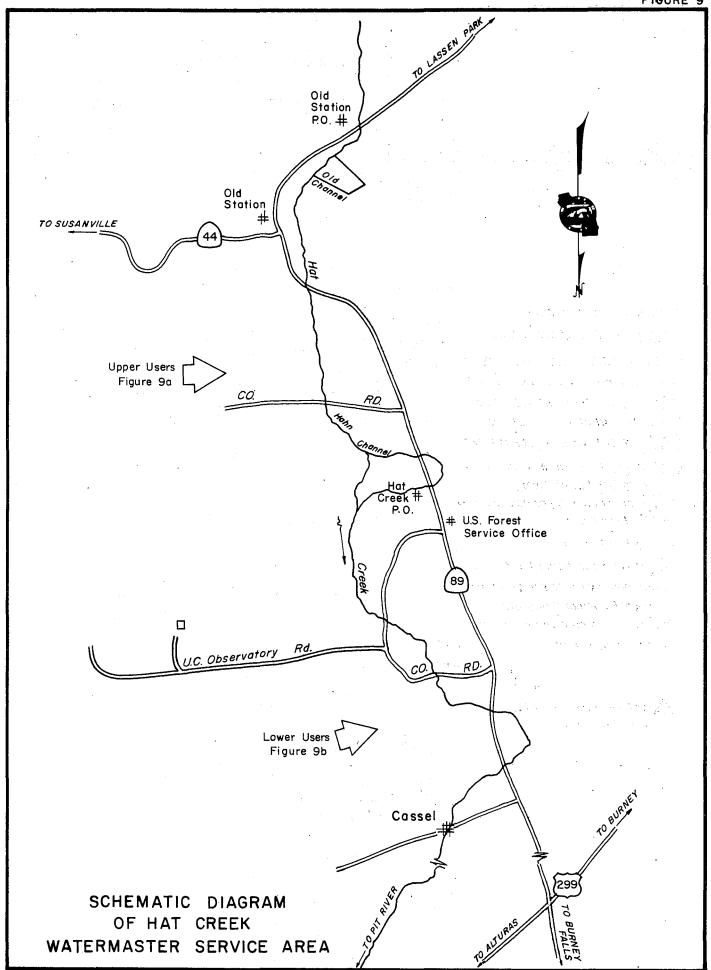
A Parshall flume was constructed on Doug Burnett's ditch.

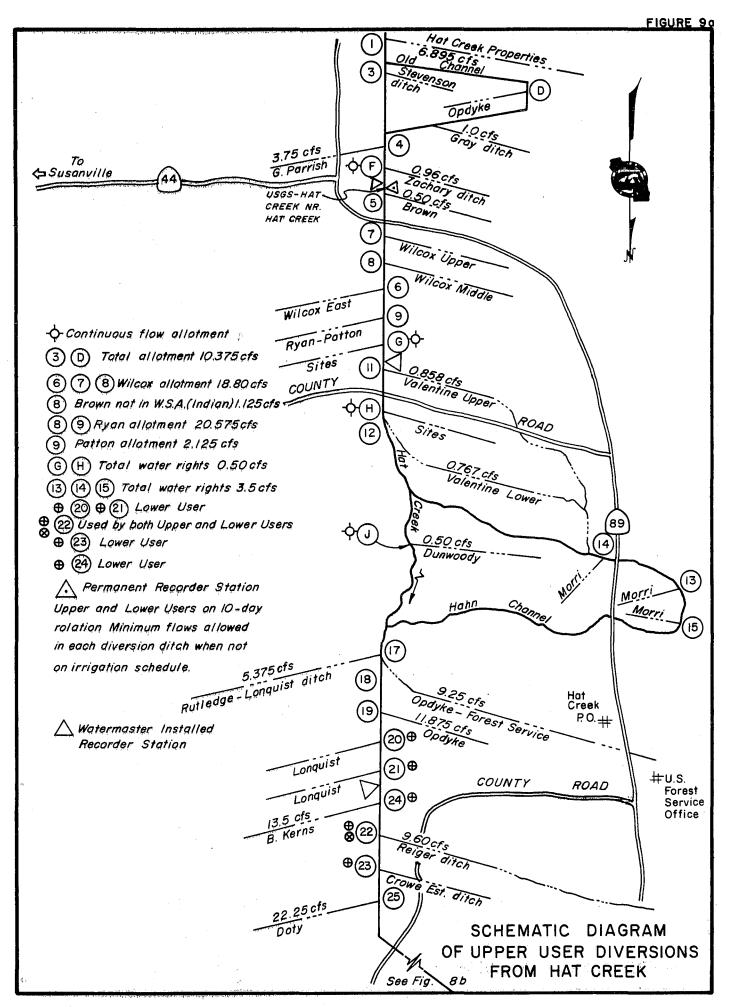
One watermaster recorder installed on Indian property was destroyed by vandals.

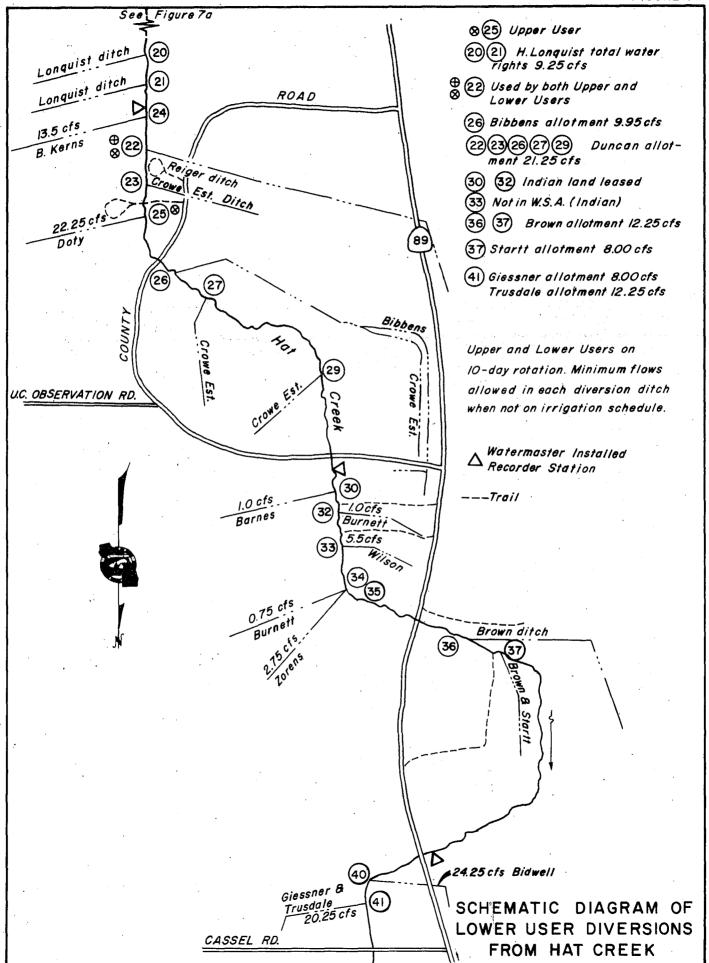
HAT CREEK WATERMASTER SERVICE AREA 1974 Daily Mean Discharge in Cubic Feet Per Second

TABLE 15 HAT CREEK NEAR HAT CREEK

				TABLE 15			er en gerind	
			HAT (CREEK NEAR HAT	CREEK			•
Day :	March	: April :	May	: June :	July	: August	: September	: Day
1	155	171	181	228	237	177	1 55	1
. 2	157	171	180 181	219 212	235 230	177	154 155	-2
3 4	162 159	171 170	184	220	230 225	177 176	1 55 1 55	. 4
5	155	172	194	227	222	176	155 155	2 3 4 5
6	158	175	190	237	219	175	155	6
7	158	175	1 91	249	214	175	160 166	7 8
8	157	172	203 200	262	211	174	1 66 1 66	345 A
9 10	155 155	174 175	212	268 264	209 208	163 158	164	10
11	155	171	223	270	200	158	164	11
12	167 `	170	235	268	194	158	164	12 13
13	159	171	249	264	193	159	163	13
1 4 1 5	158 157	172 175	247	268 271	1 90 1 88	159 159	164 163	14 15
			244					
16 17	157 155	1 <i>77</i> 180	237 222	279 281	188 190	160 162	1 63 1 63	16 17
18	155	177	217	270	194	159	163	18
19	155	175	223	275	193	166	159	19
20	157	178	230	281	191	170	1 52	20
21	157	174	228	273	186	168	152	21
22	159	172	214	277	183	168	1 52 1 52	22
23 24	188 183	171	230 251	27 <i>7</i> 258	181 179	168 168	153	23 24
25	179	i 7 i	271	258	177	170	153	25
26	1 96	171	290	356	176	170	166	
27	177	171	271	312	175	170	168	26 27 28 29
28	175	174	288	266	174	167	167	28
29 30	174 175	176. 181	258 255	246 240	172 176	154 154	170 170	29 30
31	172		232	240	177	154		31
Mean	<u></u>		227	263	196	166	160	Mean
Runoff In Acre-Feet	1 00 80	10320	13950	15620	12070	10210	9530	Runoff In Acre-Feet
MOIG-FEEL								WOLO-LEGIT







Indian Creek Watermaster Service Area

The Indian Creek service area is located in the north central part of Plumas County in the vicinity of the town of Greenville. There are 45 water right owners in the service area with total allotments of 97.015 cubic feet per second. The major sources of supply in the service area are Indian Creek and two major tributaries, Wolf Creek and Lights Creek. Indian Creek and its minor tributaries rise in the mountains east of the service area. It then flows through Gennessee Valley and through Indian Valley past the towns of Taylorsville and Crescent Mills to its confluence with the North Fork Feather River. Indian Creek is joined from the north by Lights Creek and Wolf Creek in the northwest part of the valley. The major place of use is in Indian Valley, which is about four miles long and two and one-half miles wide. The average elevation is about 3,500 feet.

A schematic drawing of each major stream system within the Indian Creek service area is presented as Figures 10 through 10c, pages 53 through 56.

Water Supply

The water supply in the Indian Creek service area is derived primarily from snowmelt runoff with springs and seepage maintaining some late summer flow. The flow of Wolf Creek is normally sufficient to supply all allotments until June 1, while Indian and Lights Creeks, with the exception of some tributaries, have sufficient flow to supply all allotments until July 1. After these dates, the flow steadily decreases throughout the season until by the end of August only a small portion of allotments is available.

A record of the daily mean discharge of Indian Creek near Taylorsville is presented in Table 16, page 52.

Method of Distribution

The basic method of irrigation in Indian Valley is wild flooding. Small diversion dams are placed in the stream channels to divert the water into distribution ditches for conveyance to the fields. Small check dams, located throughout the fields in swales, help to spread the water over the ground. There is a limited amount of check and border irrigation in the valley. A few sprinkling systems are also in use.

The Indian Creek decree (see Table 1) establishes three priority classes for each of the major stream systems within the Indian Creek service area.

1971 Distribution

Watermaster service began in the Indian Creek service area on April 22 and continued until September 30 with Harvey M. Jorgensen, Water Resources Engineering Associate, as watermaster.

The available supply in the service area was above average during the season.

wolf Creek. The available water supply of Wolf Creek was sufficient to satisfy all allotments (three priorities) until August 30. The streamflow gradually decreased until only first priority allotments were being served on September 15.

Lights Creek and Tributaries. The available water supply of Lights Creek was sufficient to satisfy all allotments (three priorities) until September 10. Surface flow continued throughout the season. The available water supply of Cooks Creek satisfied all allotments until August 30.

Indian Creek. The available water supply of Indian Creek was sufficient to satisfy all allotments (three priorities) until July 6. On this date the drainage of

Antelope Lake was started and the flow of Indian Creek increased by more than 100 cubic feet per second until October 13, when the outflow from Antelope Dam was reduced to zero. This condition afforded excellent irrigation water for the water users on Indian Creek.

Special Occurrences

Because of the above-average water supply, it was not necessary to install orifice plate control devices in Diversion 54, an action normally required.

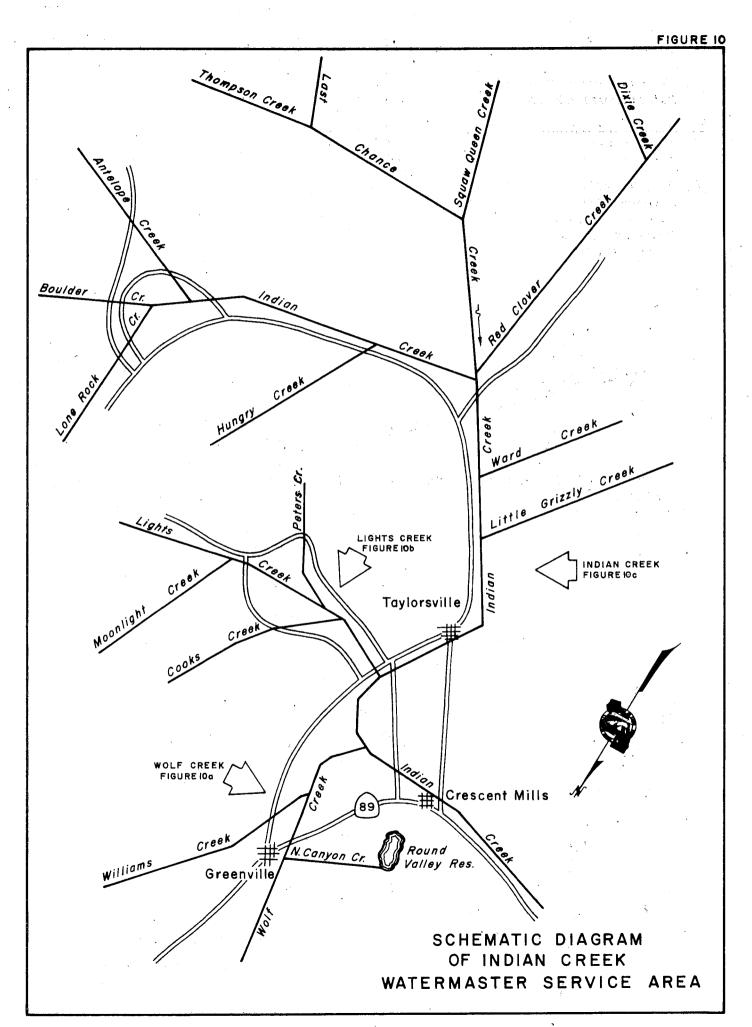
Divider structures were designed and constructed in the Cole, Pearce, and Neer irrigation ditches, alleviating many long-standing problems at these diversion points. Also, one divider structure, short section of ditch and road culvert crossing were eliminated.

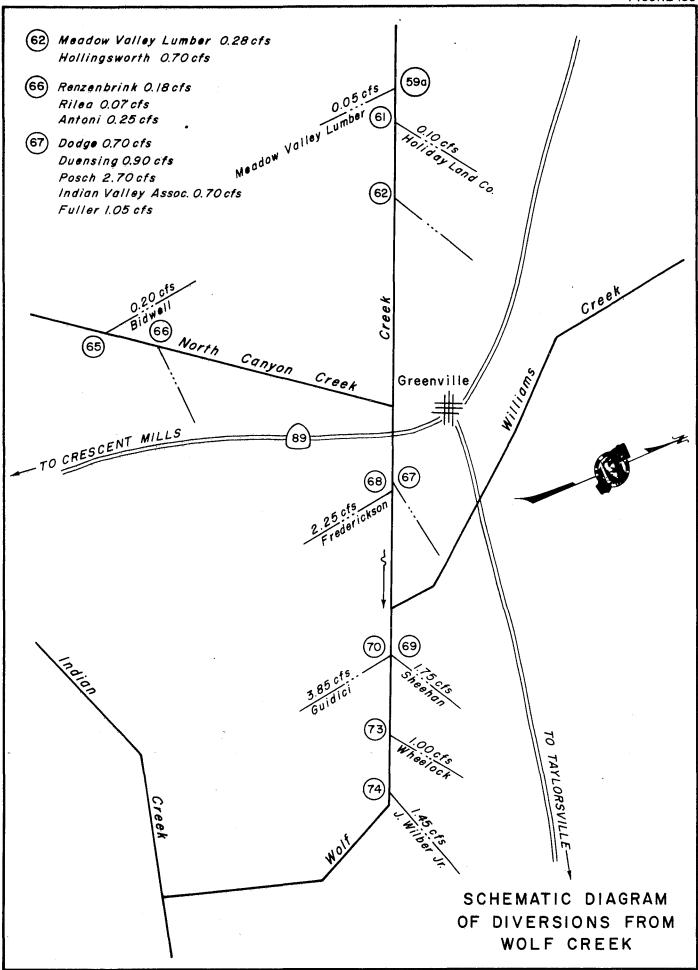
Engineering plans and advice were rendered in the construction of a main divider structure on the Mill Race system, replacing the old structure which was sorely in need of repair.

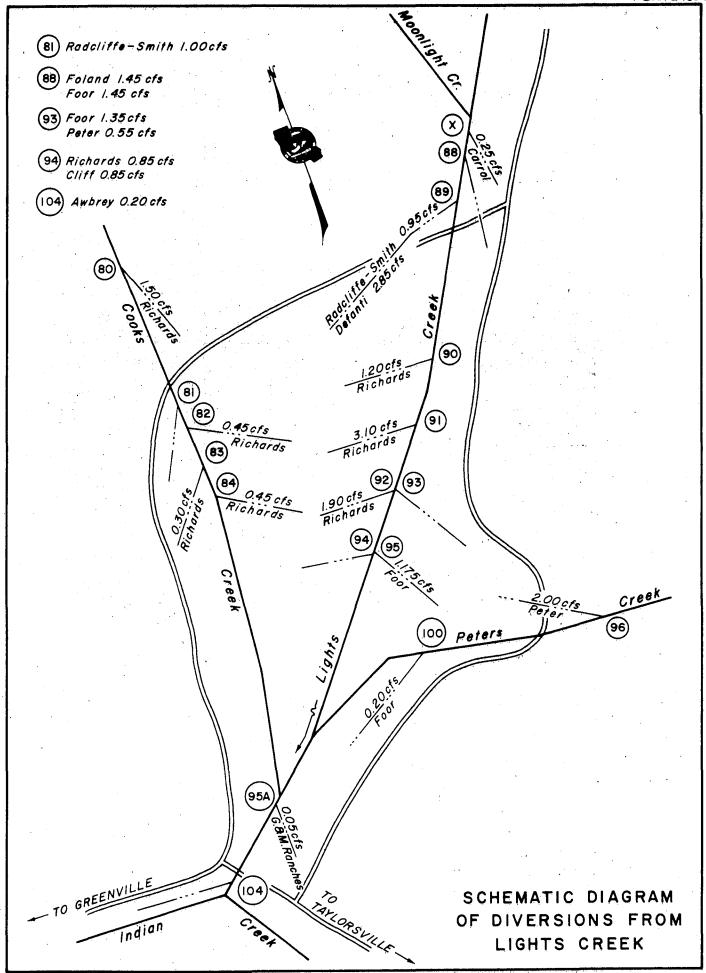
INDIAN CREEK WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

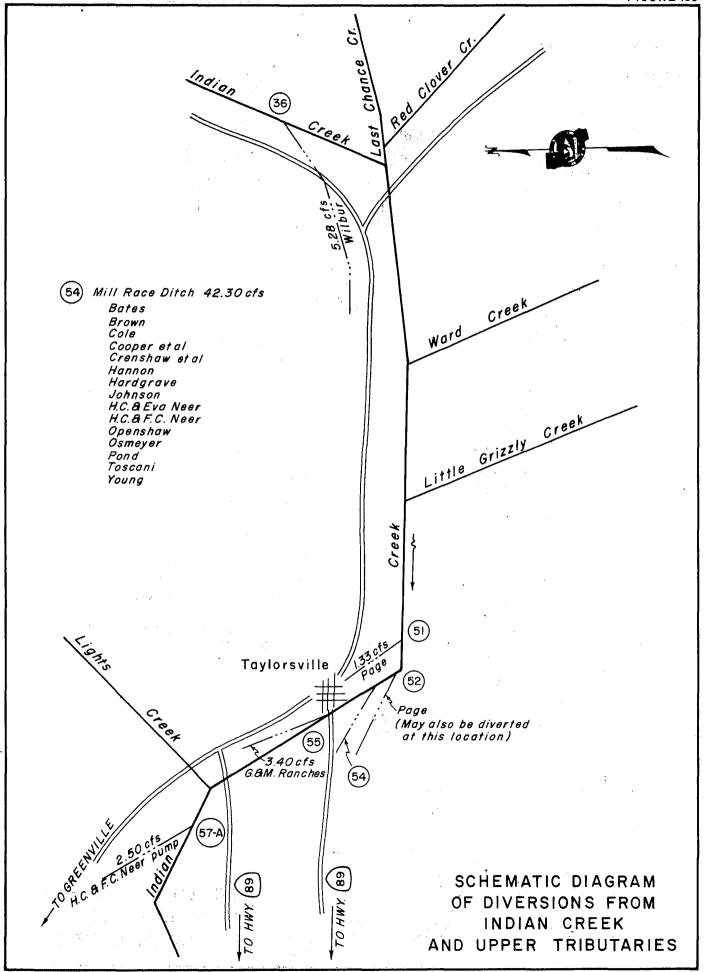
TABLE 16
INDIAN CREEK NEAR TAYLORSVILLE

Day ;	March	: April .	: May	: June	: July	: August :	September	: Day
1 2 3	273 245 277	1 860 1 870 1 91 0	1580 1640 2080	2360 2240 2200	484 460 397	21 4 207 202	163 157 157	1 2 3
3 4 5	286 272	1 990 21 00	2600 2520	2020 2120	338 326	1 96 1 93	157 157	2 3 4 5
6 7 8	255 262 261	231 0 2250 1 960	2230 2050 2540	1 900 1 800 1 720	326 370 342	191 186 184	154 157 157	6 7 8 9 10
9 10	261 268	2060 2550	2390 2270	1 640 1 540	329 322	184 180	157 155	9 10
11 12 13	276 806 1040	1970 1840 1890	2300 2660 2480	1460 1370 1290	314 306 295	1 80 1 7 7 1 7 5	158 158 157	11 12
14 15	804 645	1 87 0 2 0 2 0	2330 2200	1200 1140	288 284	171 170	157 155 152	12 13 14 15
16 1,7	579 617	2040 2090 1810	2080 1820	1100 1060 984	273 267	168 168	152 152	16 17
18 19 20	539 508 548	1540 1490	1620 1510 1480	91 4 862	280 276 276	166 168 163	149 149 154	18 19 20
21 22 23	654 819	1390 1230	1600 1660	796 702	273 259	163 165	154 154	21 22
23 24 25	1550 2200 2160	1130 1060 1040	1910 1670 1680	644 598 547	248 241 235	1 65 1 63 1 65	150 152 149	23 24 25
26 27	4630 3300	1 45 0 1 45 0	1690 1670	743 884	233 227	170 180	152 152	26 27
28 29 30	2550 2380 2640	1350 1430 1490	1850 1920 2160	731 613 519	225 225 21 9	170 166 164	1,44 1 57 1 66	28 29 30
31 Mean	2320 1104	1748	2270 2014	1256	217 295	<u>1 65</u> 176	154	31 Mean
Runoff In-	67884	104013	123888	74771	18159	1 0867	9197	Runotf In Acre-Feet









Middle Fork Feather River Watermaster Service Area

The Middle Fork Feather River service area is located in the plateau area on the west slope of the Sierra Nevada Mountains in the eastern portions of Sierra and Plumas Counties. There are 96 water right owners with total allotments of 371.565 cubic feet per second.

Major sources of supply for this service area are the Middle Fork Feather River and its tributaries in the Sierra Valley. The area is comprised of five major stream groups. These groups, starting in the northeast corner of the valley and proceeding in a southerly and westerly direction, are Little Last Chance Creek, Smithneck Creek, Webber Creek and tributaries, West Side Canal, and Fletcher Creek and Spring Channels. The Middle Fork Feather River flows generally north for approximately 20 miles through Sierra Valley. It then flows out of the valley in a westerly direction near Beckwourth. The major place of use is in Sierra Valley, which is about 15 miles long and 10 miles wide. The average elevation of the valley floor is 4,900 feet.

A schematic drawing of the Middle Fork Feather River service area is presented as Figure 11, page 60.

Water Supply

The major water supply in the Middle Fork Feather River service area is derived from snowmelt runoff, with minor flow from springs and from supplemental stored and foreign water.

Natural flows of Little Last Chance Creek are supplemented by reservoir storage provided by Frenchman Dam which was constructed by the Department of Water Resources in 1961. Stored water is released and used as needed under the provisions of an annual contract. Smithneck Creek flow is normally sufficient to supply all allotments until about the middle of May. It then decreases until about June 1. Only first and second priority allotments are then available for the remainder of the season.

The natural flow of Webber Creek is normally sufficient to supply all allotments until the middle of May. At that time up to 60 cubic feet per second is diverted from Little Truckee River to supplement the flow. This imported water is diverted through the Little Truckee Ditch into Onion Creek and then into Webber Creek via Cold Stream for use of shareholders in the Sierra Valley Water Company. This supplemental supply decreases rapidly during July, producing only a small quantity during the latter part of the season. The West Side Canal streams normally supply all allotments until the first part of June. The flow then gradually declines throughout the season.

The flow of Fletcher Creek and Spring Channels normally supplies all allotments until July 1. The flow then gradually declines for the remainder of the season.

Records of the daily mean discharge of several stream gaging stations in the Middle Fork Feather River service area are presented in Tables 17 and 18, page 59.

Method of Distribution

Wild flooding is employed by the majority of the water users to irrigate their fields. Small diversion dams are placed in the stream channels to divert the water into individual distribution systems. Check dams are constructed in the swales to implement flooding once the water reaches the fields.

The Middle Fork Feather River decree (see Table 1) establishes the number

or priority classes for each of the major stream systems within the Middle Fork Feather River service area as follows: Little Last Chance Creek - eight; West Side Canal Group - five; Fletcher Creek and Spring Channels - three; Sierra Valley Water Company - one; Webber Creek and tributaries - six; and Smithneck Creek - five.

1971 Distribution

Watermaster service began April 1 in the Middle Fork Feather River service area and continued until September 30. Joe Nessler, Water Resources Engineering Associate, was supervising watermaster during this period. Conrad Lahr, Water Resources Technician II, assisted as deputy watermaster.

An above-average water supply existed in the service area due to an above-normal snowpack and a late, wet spring.

Little Last Chance Creek. This was the tenth season of operation for Frenchman Dam and Reservoir. Release and distribution of water was in accordance with the annual contract between the Department of Water Resources and the Last Chance Creek Water District. Contract releases started June 21 and ended November 11. Total delivery during the season was 10,120 acre-feet. Prior to June 21, reservoir spill was sufficient to meet all demands.

Smithneck Creek. The available water supply was sufficient to satisfy all allotments (five priorities) until about June 1, when approximately 70 cubic feet per second was available at the upper diversion dam. The flow then dropped rapidly to 6 cubic feet per second by June 25 and remained at this level through the end of the season. Demand for water was less than normal on this system due to late rains and pollution of the stream by the

Feather River Lumber Company which discouraged use of the water for fear of crop damage. Also, subdivision development work by the Occidental Petroleum Land Company has temporarily taken some land out of production. Channel realignment on the Middle Fork of Smithneck Creek from the Loyalton Sewer Plant Road to the Julio Genasci Ranch was accomplished this fall. This work was performed to enlarge the channel which has silted in over the past several years.

Webber Creek and Tributaries. The natural flow of Webber Creek was sufficient to supply all allotments (six priorities) until about August 1. It then decreased gradually until about 50 percent of second priority allotments were being served at the end of the season. Importation of water from the Little Truckee River was begun on June 14 to supplement the natural flow of Webber Creek to satisfy all allotments of the Sierra Valley Mutual Water Company shareholders (one priority). A total of 2.752 acre-feet of water was diverted through the Little Truckee Ditch up to September 30 at which time diversion was terminated. This diversion provided sufficient water until about August 1. A lighter than normal demand was experienced in this stream system due to damage of diversion facilities by high water during the previous winter.

water supply in the West Side Canal Group, consisting of Hamlin, Miller, and Turner Creeks, was sufficient to satisfy all allotments (five priorities) until the latter part of August. Sufficient water was available to meet irrigation needs for the remainder of the season. Rotation of water wasn't necessary this season.

Fletcher Creek and Spring Channels.

Ample water was available to satisfy all allotments (three priorities) through July. The demand for water was very low due to the non-use by the majority of users for various reasons.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

1971 Daily Mean Discharge in Cubic Feet Per Second

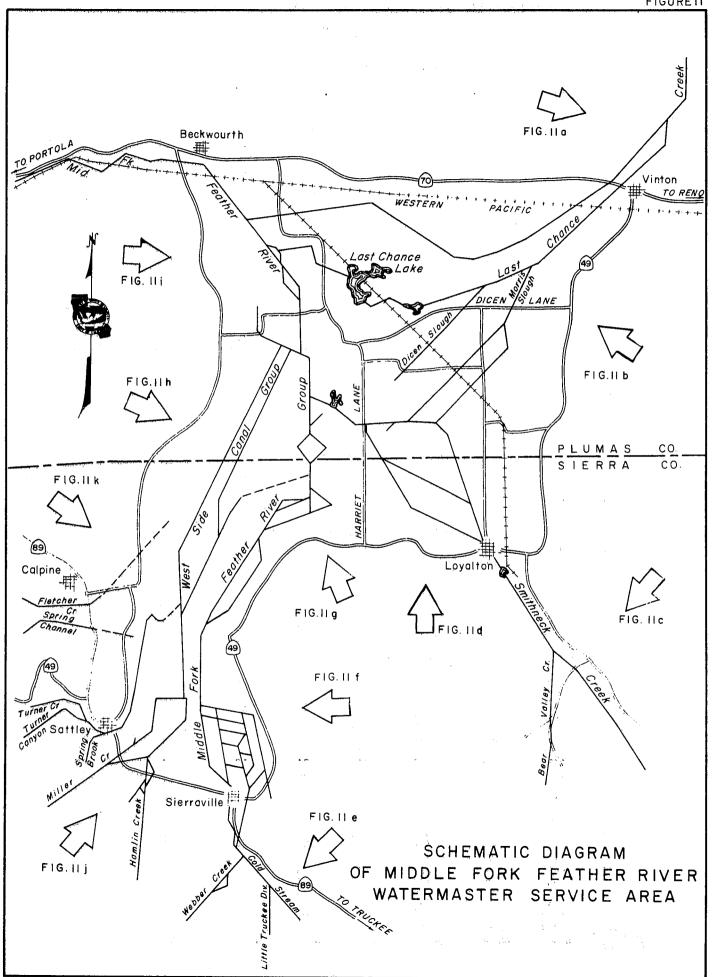
TABLE 17
LITTLE TRUCKEE DITCH AT HEAD

Day : March ;	April : May :	June :	July :	August :	September	: Day
1 2 3 4 5			35 36 37 32 22	8.9 8.2 8.2 13 24	5.1 4.9 4.6 4.6 5.7	1 2 3 4 5
6 7 8 9 10			22 21 21 20 19	23 21 19 18 16	4.9 4.1 4.1 3.9 3.9	6 7 8 9 10
11 12 13 14 15		0.2* 0.4	18 18 17 17	17 16 14 13	3.9 3.7 3.7 3.0 2.4	11 12 13 14 15
16 17 18 19 20		0.4 0.4 0.4 0.4	17 19 20 18 17	10 9.5 8.8 8.6 8.2	2.4 2.2 2.2 2.2 2.4	16 17 18 19 20
21 22 23 24 25		24 38 37 37 39	16 14 14 13 12	7.6 7.3 7.0 -6.7 7.6	2.4 2.4 2.2 2.2	21 22 23 24 25
26 27 28 29 30 31		41 40 36 35 34	12 11 11 10 9.5 9.2	7.3 7.9 6.7 5.9 5.4 5.1	2.4 2.6 2.8 3.2 2.8	26 27 28 29 30
Mean Runoff In Acre-Feet		721	7 8 5 7 7 1 1 1 4 0	694	197	Runoff In Acre-Feet

^{*} Beginning of Flow

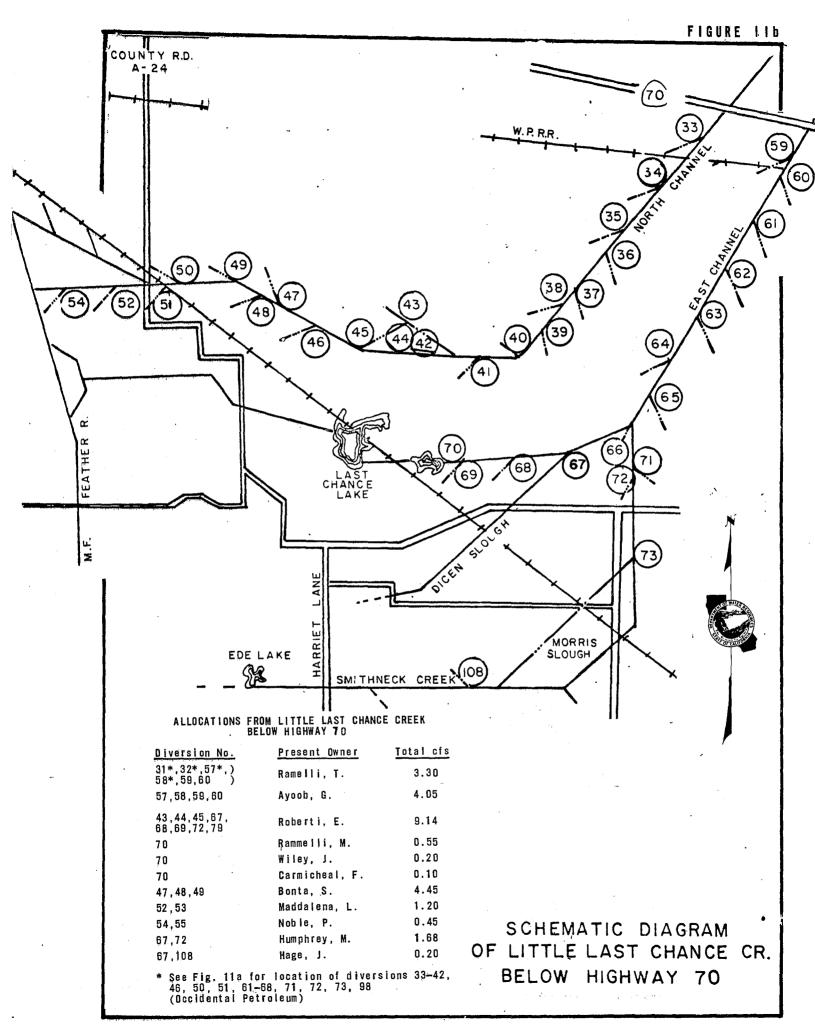
TABLE 18
MIDDLE FORK FEATHER RIVER AT PORTOLA

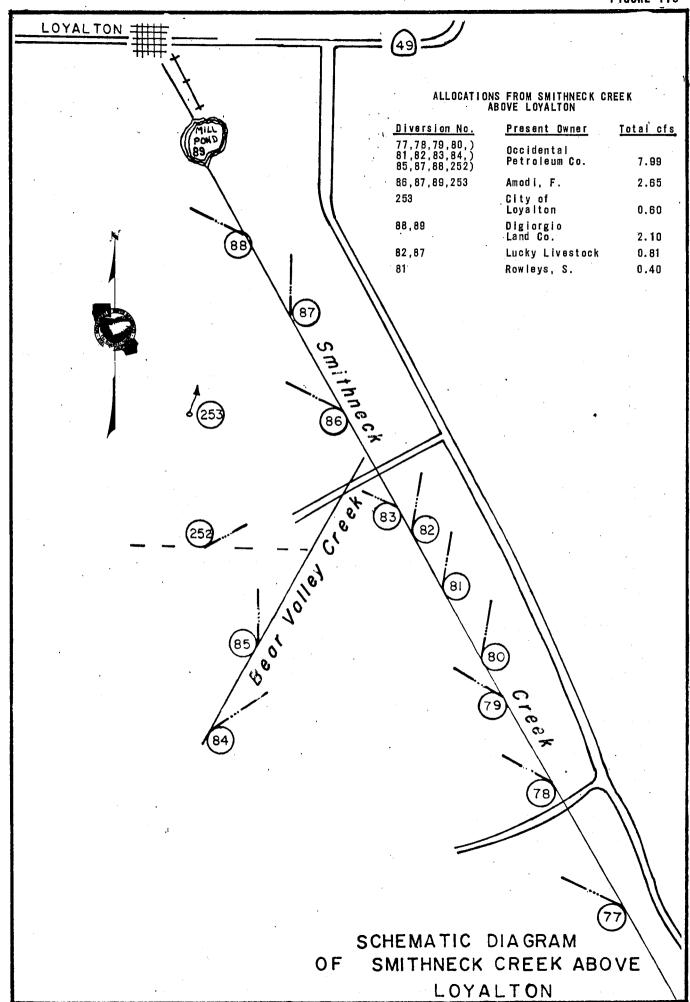
			MIDDEL I ONK	I ENTITED		JKI O EA	-	
Day : 1 2 3 4 5	220 210 179 237 294	909 788 680 619 592	: May : 720 739 879 1050 1170	June 1110 1150 1100 966 832	201 205 202 187 165	44 40 36 32 30	September 21 22 21 19 16	Day 1 2 3 4 5
6 7 8 9 1 0	325 304 293 343 400	604 655 758 752 858	1200 1150 1290 1590 1780	751 691 624 544 507	139 127 118 109 95	28 27 29 29 29	18 19 15 13 15	6 7 8 9 10
11 12 13 14 15	490 919 1520 3020 2210	901 915 911 955 921	1580 1440 1310 1260 1200	461 356 345 335 317	85 80 77 73 71	28 27 25 22 19	15 14 13 13 14	11 12 13 14 15
16 17 18 19 20	1600 1700 1460 1470 1360	918 952 988 975 910	1140 1110 1070 988 853	295 270 246 217 186	65 63 64 60 59	20 19 19 17 15	14 15 14 13	16 17 18 19 20
21 22 . 23 24 25	1450 1520 1740 2650 2100	865 830 783 731 723	800 809 831 837 797	162 149 141 130 123	60 57 55 52 50	15 16 22 20 29	13 12 13 16 16	21 22 23 24 25
26 27 28 29 30 31	3600 6050 3380 1770 1230 1030	849 906 880 802 742	721 697 706 735 835 1040	139 162 179 198 198	50 48 47 45 47 46	28 28 24 23 22 20	17 20 23 23 28	26 27 28 29 30 31
Me an		822		429		25.2	<u></u> <u>-</u>	Mean
lunoff Tin lore-Feet	89403	48936	64120	25 55 5	5558	1551	988	Runoff In Acre-Feet

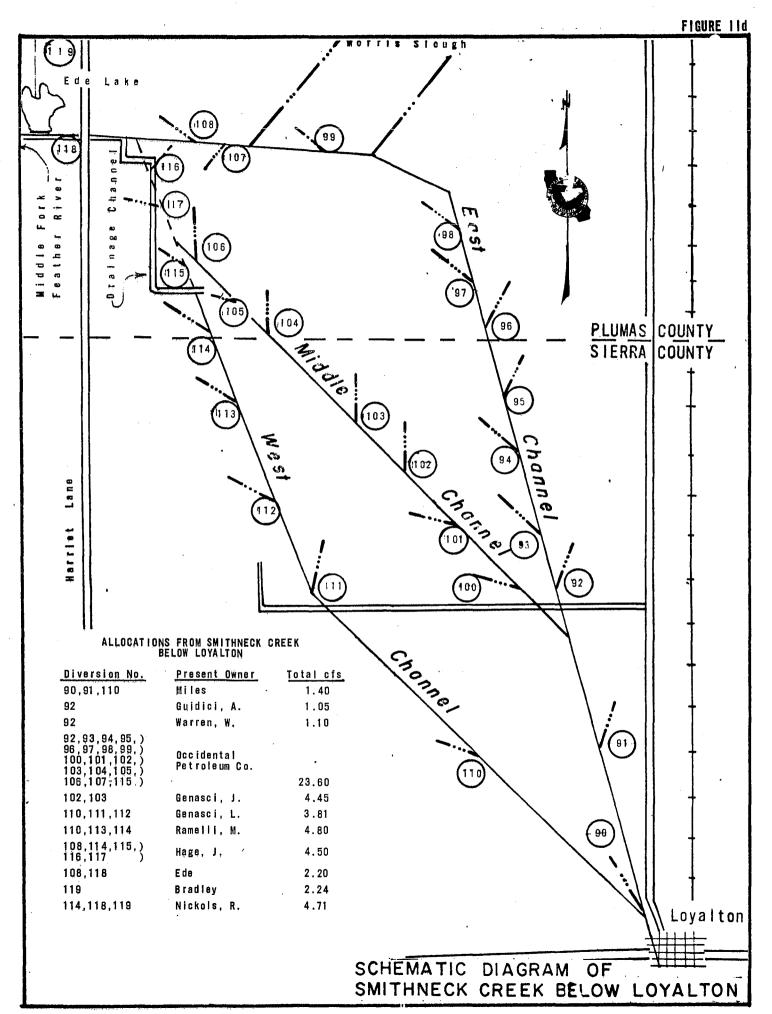


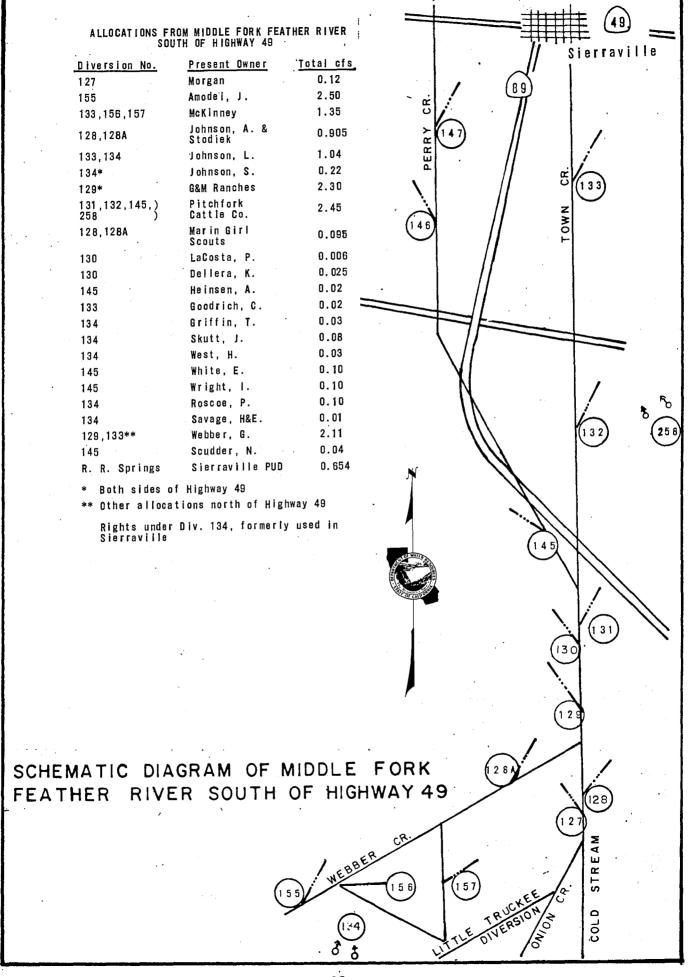
ALLOCATIONS FROM LITTLE LAST CHANCE CREEK

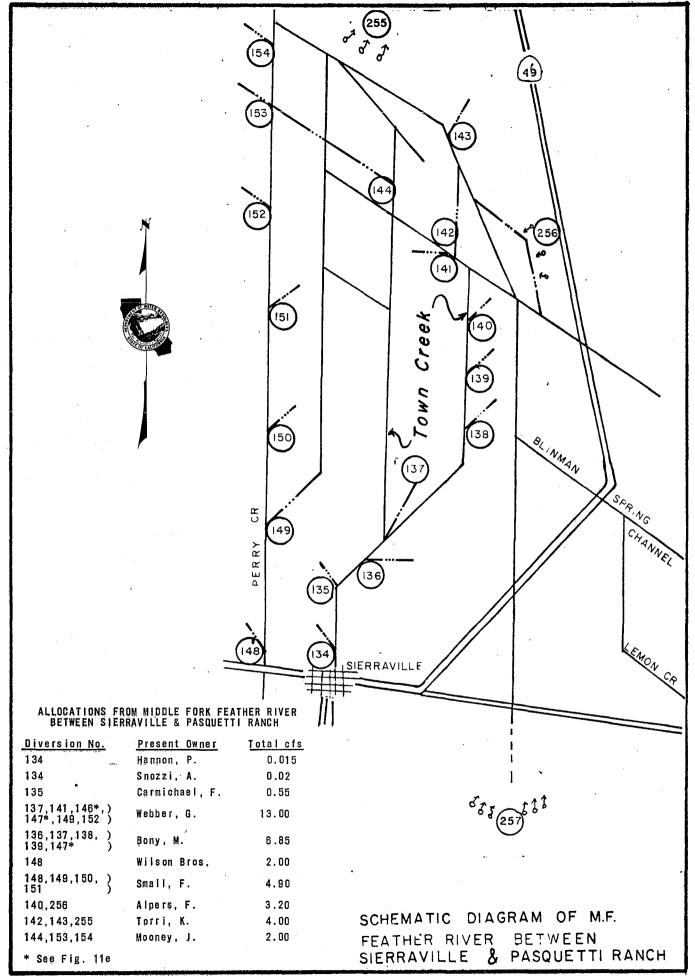
	ABO	VE HIGHWAY 70	
	Diversion No.	Present Owner	Total cfs
	21,22,23	Guidici, D.	7.80
	21,22	Guidici, R.	1.55
	24,25,56,57	Pitchfork Cattle Co.*	8.85
	23,26,27,28	Thirty One Ranch Co.	1.85
	28,29,30,31	Dotta, F.	4.40 (2.2)
	31,33	Sanders, 1.	0.47
	31,33,34,35,)		60
	36,37,38,39,) 40,41,42,44,) 46,50,51,57,) 58,61,62,63,) 64,65,66,67,) 68,71,72,73,) 98**	Occidental Petroleum Co.*	37.13
			e (24)
		Highway 70, and see	Fig. 11b
	** See Fig. 11d		Fig. 11b Chon 25
•			n 51 (56)
	1		(26)_
	W		Little 57
			111/02
	1	•	V (27)
	7		
: _	_ }		
	A PARTIES AND A		(28)
		(29)/	
*			1 \alpha ne'
	,		Channel
		(30)/	Che
	-	- ··-	
			- (58) E 051
	(31)	namel	
		$Q_{U_{i}}$	/ *
		ρv	
	(32)		
_	North North		SCHEMATIC DIAGRAM
			O F
	No		
/		<u>/</u> LITTL	e last chance creek
		/	·
			ABOVE
		_	HIGHWAY 70
W.			
Western	_		
	'		VINITON
_	Popie		VINTON
	Cific		(70) 7 [17]
		Rail	
		Railroad	749
		The state of the s	

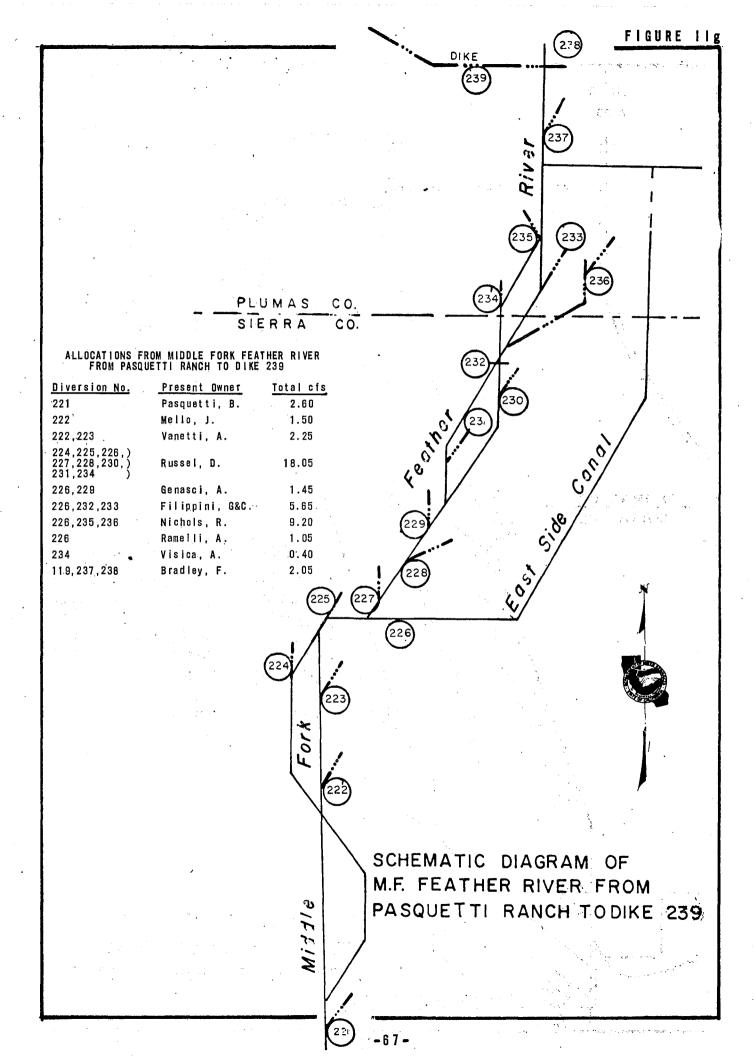


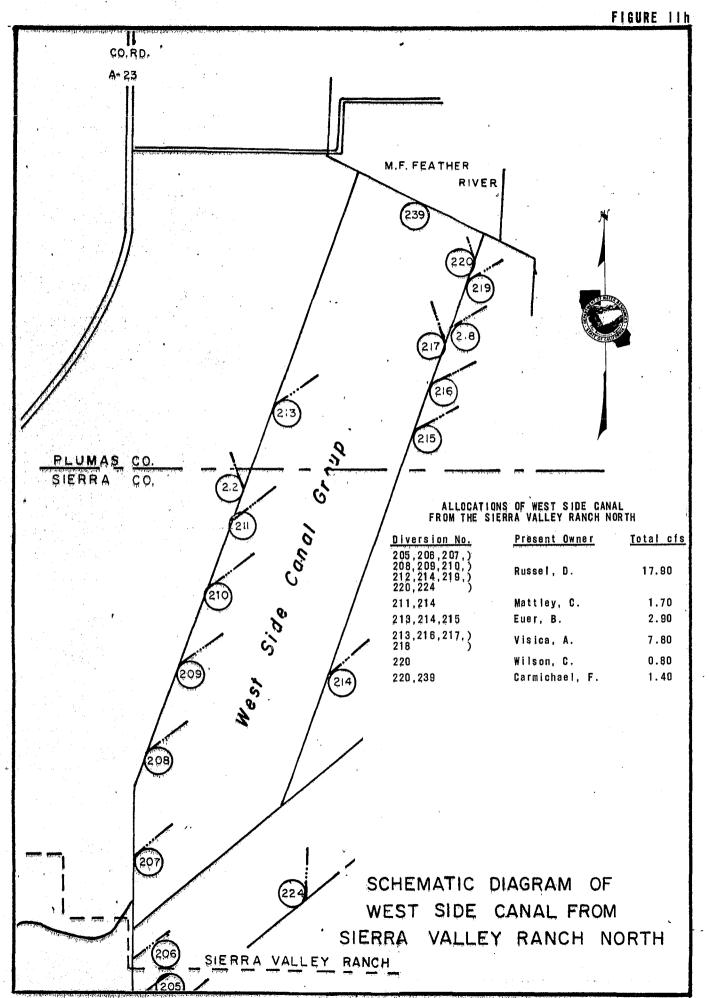


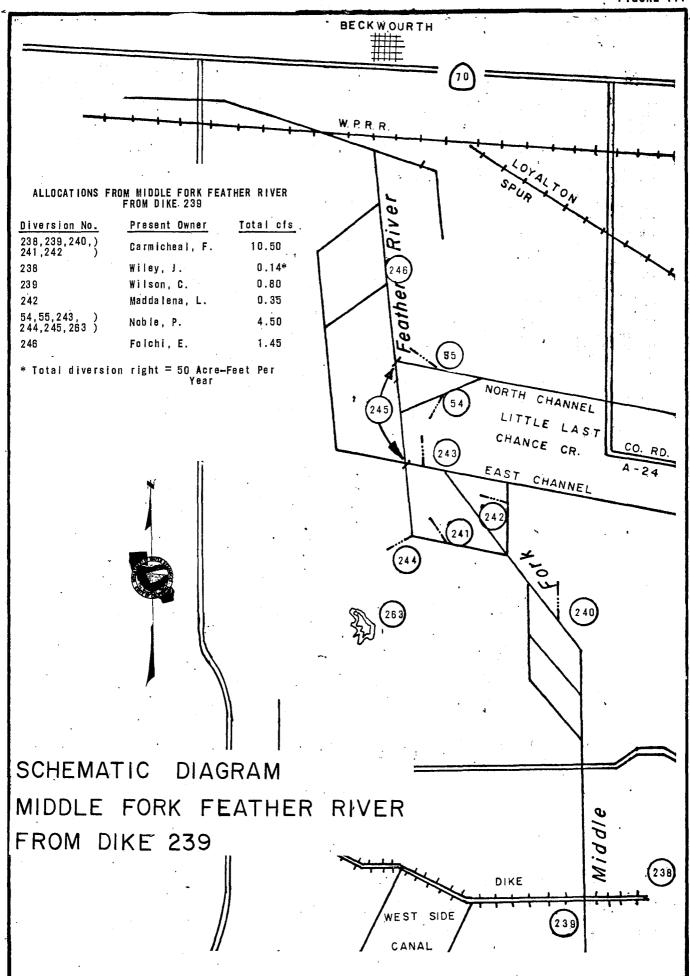


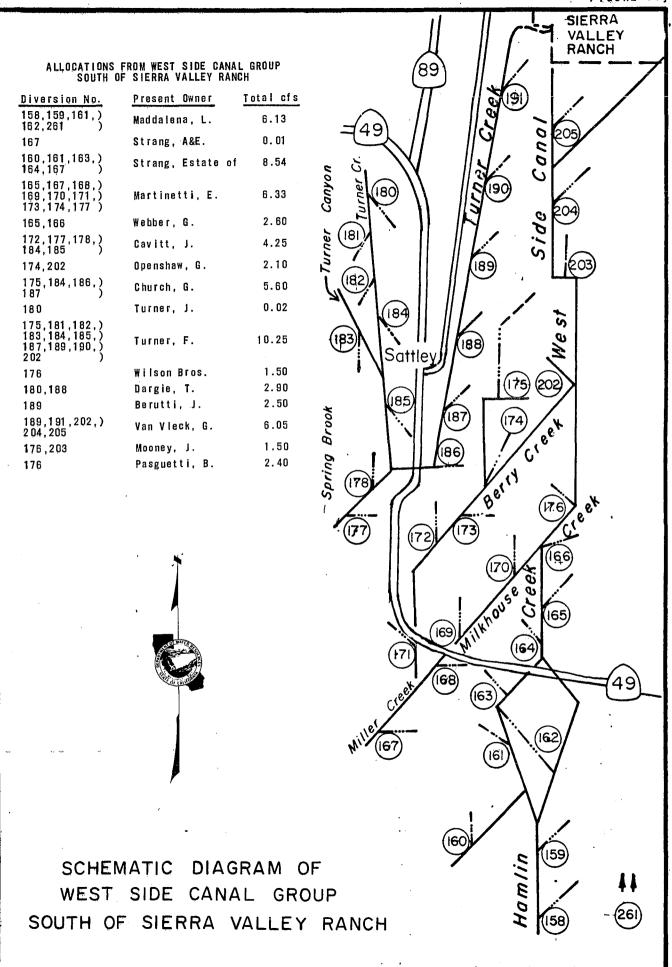


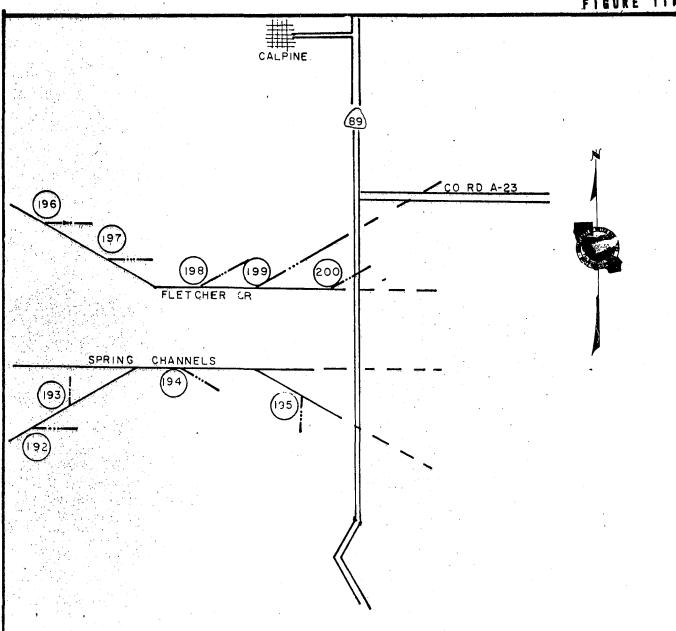












ALLOCATIONS FROM FLETCHER CREEK AND SPRING CHANNELS

Diversion No.	Present Owner	Total cfs
196	Sierra Co. Water District	0.52
196	Blanchard, O.	0.04
177,178,192,) 193,194)	Borelli, À.	1.744
192	Scott, F.	0.05
192,193,194	Jinnette, F&W.	0.046
195,199,200	Paulson & Cadenhead	1.428
199	Lukens & Coppla	0.302
199,200	All Pro Guest Ranch	0.864
199,200	Berutti, J.	0.456

SCHEMATIC DIAGRAM OF FLETCHER CR. AND SPRING CHANNEL

North Fork Cottonwood Creek Service Area

The North Fork Cottonwood Creek service area is located in the southwestern part of Shasta County near the towns of Ono and Gas Point. There are 13 water right owners in the area with total allotments of 30.30 cubic feet per second.

North Fork Cottonwood Creek and its tributaries, Moon Creek and Jerusalem Creek, are the major sources of water supply in the area. These creeks rise on the east slopes of the foothills of the Coast Range Mountains. North Fork Cottonwood Creek flows in a southeasterly direction to its confluence with Cottonwood Creek near Gas Point. The area is characterized by high summer temperatures and moderate rainfall. The irrigable land consists of sparsely scattered parcels separated by steep, brushy hills. These lands are at about the 1,000-foot elevation.

A schematic drawing of the North Fork Cottonwood Creek stream system is presented as Figure 12, page 75.

Water Supply

Snowmelt contributes to the flow in North Fork Cottonwood Creek during the early weeks of the irrigation season. However, perennial springs provide the major source of supply during the summer and fall months. The flow is normally sufficient to supply all demands. In dry years, however, the available supply may be as low as 30 to 40 percent of the decreed allotments.

A record of the daily mean discharge of North Fork Cottonwood Creek near Igo is presented in Table 19. This stream gaging station is located downstream from most points of diversion on the creek, but gives a general indication of the water supply.

Method of Distribution

The general practice throughout the area is to irrigate by wild flooding. One water user, however, pumps directly from the creek using a sprinkler system to irrigate his crops. Pumping was necessary at this diversion point because the irrigated land was higher in elevation than the creek channel.

The North Fork Cottonwood Creek decree (see Table 1) provides for distribution of water on an equal and correlative basis for all users (one priority).

1971 Distribution

Watermaster service began in the North Fork Cottonwood Creek service area on July 1 and continued until September 30. Ross P. Rogers, Water Resources Engineering Associate, was watermaster during this period.

The available water supply in North Fork Cottonwood Creek was extremely good. High flows occurred during the spring months. Although the streamflow decreased significantly during late July, August, and September, all demands were met, due to limited or non-use of the allotments of a few water right owners.

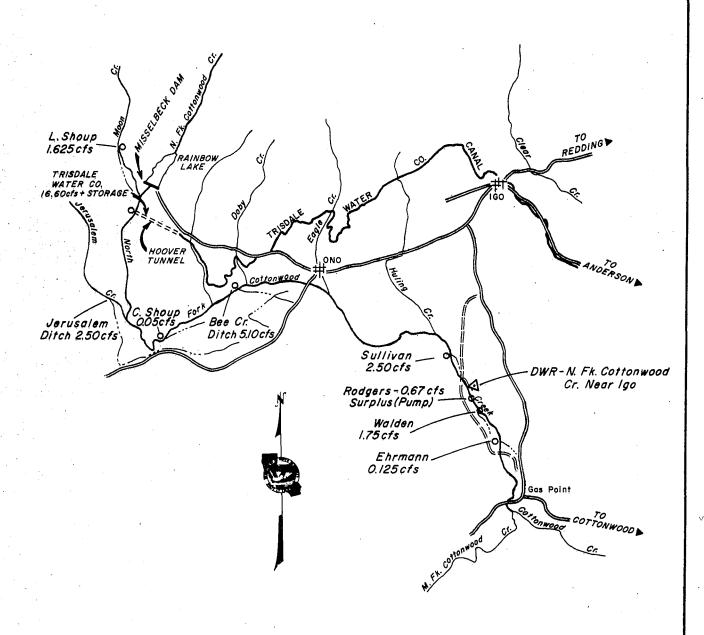
Special Occurrences

Rainbow Lake remained far below its storage capacity due to the unsafe condition of Misselbeck Dam. Curtailment of storage will continue until extensive repairs are made.

NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA

TABLE 19
NORTH FORK COTTONWOOD CREEK NEAR IGO

Day :	March	: April :	May:	June	: July :	August	: Şeptember	: Day
1 2	122 105	359 369	137 137	81 73	19 18	8.0 7.9	7.3 8.2	1
3	105	359	1 48	67	17	7.9 7.9 7.3 7.8	10 9.7	2 3 4 5
4 5	101 97	349 350	1 42 1 41	67 64	16 15	7.3	9.7 10	4 5
			1 31				10	
6 7 8 9	92 92	350 340	118	62 62	14 14	8.0 8.0 7.6	11	6 7 8 9 10
8	88	322	126	59	14	7.6	14	8
9	88	350 271	113	59 50	14	7.4 7.5	14	9
10	92	371	105	56 5.4	14		13	
11	118 636	314 299	1 01 1 01	54 52	13 12	6.8 6.1	13 13	11 12
12 13	330	281	97	45	12	7.2 6.9	12	iã
14	350	241	92	43	16	6.9	13	12 13 14 15
15	297	234	88	36	14	6.4	12	
16 17	281	228 221	86 81	35 33	13 13	6.0 5.8	13 12	16 17
18	256 221	21 B	78	30	16	5.4	12	18
18 19 20	200	214	78	29	18	4.9 4.9	12	18 19
	187	214	76	26	17		12	20
21	180	200	73	25	15	5.3 5.6 5.4 5.2 5.3	6.8 5.9	21 22 23 24 25
22	180 187	1 94 1 8 7	70 70	23 22	15 13	5.6 5.4	5.9 5.4	22 23
22 23 24 25	234	180	67	21	12	5.2	4.1	24
25	1370	175	67	20	12		4.1	25
26 27	1630	164	73	33	11	5.2 5.2	4.6	26
27	773	153	78 100	29	10 9.0	5.2 5.1	4.2 4.3	27
28 29	630 557	1 48 1 3 9	109 88	24 22	8.9	5.2	6.9	29 29
30	45 5	137	81	20	8.5	5.6	12	26 27 28 29 30 31
31	384 336		76		8.1	7.7		31
Runoff In		255	97.7	42.4	13.6	6.4	9.7	Mean Runoff In
Acre-Feet	20703	15193	6006	2523	836	394	574	Acre-Feet



A Permanent Recorder Station

SCHEMATIC DIAGRAM
OF N. FK. COTTONWOOD CR.
WATERMASTER SERVICE AREA

North Fork Pit River Watermaster Service Area

The North Fork Pit River service area lies along the west slopes of the Warner Mountains in northeastern Modoc County and extends from the Oregon border about 45 miles southward to a point just south of Alturas. There are 91 water right owners in the area with total allotments of 214.655 cubic feet per second.

A number of small independent stream systems, rising on the west slope of the Warner Mountains and generally following a westerly direction, comprise the major source of water supply. Three of these streams, New Pine Creek, Cottonwood Creek, and Davis Creek, are tributary to Goose Lake. All other streams in the service area are tributary to the North Fork Pit River. They are: Linville Creek, Franklin Creek, Joseph Creek, Thoms Creek, and Parker Creek. The North Fork Pit River flows in a southerly direction from the south rim of Goose Lake to its confluence with the South Fork Pit River immediately below Alturas. Streams tributary to Goose Lake do not contribute directly to the flow of the North Fork Pit River, since the lake has not spilled into the river for nearly 100 years.

The place of use in the northern half of the area lies in a relatively long, narrow, sloping strip extending between the eastern shore of Goose Lake and the foothills of the Warner Mountains. The places of use in the southern half of the area, which are supplied from the North Fork Pit River and its tributaries, are primarily in the narrow valleys bordering the streams.

A schematic drawing of each major stream system within the North Fork Pit River service area is presented as Figures 13 through 13k, pages 86 through 97.

Water Supply

The streams which serve the area are fed by snowmelt runoff and springs in the Warner Mountains. A large portion of the runoff occurs early in the spring, decreasing rapidly in May and June. The watershed of New Pine Creek, however, is at a higher elevation and maintains a good supply well into the summer. After the snowpack is depleted, perennial springs at the headwaters of the tributaries are the main sources of water supply. Linville Creek, with its small drainage basin, depends almost entirely on springs at its head. Gleason Creek, Thoms Creek, and Cottonwood Creek are usually dry in August, except during years of above-average water supply.

Some supplemental water is stored in small reservoirs throughout the area, none of which are operated by the water-master. However, the inflows to some of these reservoirs are under the water-master's jurisdiction.

Records of daily mean discharge at several stream gaging stations in the North Fork Pit River service area are presented in Tables 20 through 30, pages 80 through 85.

Method of Distribution

Irrigation is accomplished primarily by wild flooding from field ditches located along high spots in the meadows. Various types of diversion structures are used to divert the natural streamflow into small earth ditches which convey it to the meadows. At present there is a limited amount of sprinkler irrigation, some by naturally developed pressure and some by direct pumping from small sumps in the ditches. Subirrigation by the use of large flashboard dams to raise the water level in the stream channel is being practiced on the North

Fork Pit River between Parker Creek and Alturas. The several decrees (see Table 1) which apply to the North Fork Pit River service area establish the following number of priority classes for the various stream systems: New Pine Creek - four; Cottonwood Creek - six; Davis Creek - four; Linville Creek - two; Franklin Creek - four; Joseph Creek - four; Thoms Creek - three; Parker Creek - four; Shields Creek - four; Gleason Creek - five; and North Fork Pit River - five.

1971 Distribution

Charles H. Holmes, Assistant Engineer, Water Resources, was watermaster in the North Fork Pit River service area during the 1971 season, beginning on April 20 and continuing through September 30.

The available water supply during the spring months was excellent throughout the service area. A large storm on May 29-30 did considerable damage to water stage recorders on several streams. Streamflows during the latter part of the season were at or above average conditions.

New Pine Creek. Surplus water was available to New Pine Creek water right owners throughout the period that the proration or correlative system of distribution was in effect (until June 30). Commencing July 1, in accordance with provisions of the decree, distribution was based on the priority system (four priorities). Fourth priority allotments received some water until August 1. Thereafter, the flow gradually decreased until approximately 50 percent of third priority allotments were being met at the end of the season.

Cottonwood Creek. A sufficient water supply existed in Cottonwood Creek to satisfy all allotments (six priorities) until late spring. The fourth priority allotments were served until late June. Thereafter, the flow decreased gradually, reaching first priority on August 25. By the end of the season the flow had

decreased until only about 22 percent of first priority allotments were served.

Davis Creek, The water stage recorder and data were washed away by high water on May 30.

Linville Creek. The available water supply in Linville Creek decreased steadily from the time watermaster service began until the end of the irrigation season. A small percentage of second priority allotments (two priorities) was supplied from June 3 to June 10. The available supply for first priority allotments ranged from 100 percent on May 18 to 46 percent at the end of the season.

Franklin Creek. The available water supply in Franklin Creek was sufficient to satisfy all allotments from April 29 to July 2. One hundred percent of third priorities were served until July 2. The flow then gradually decreased until mid-September when 34 percent of third priority allotments were being served. On September 15 the winter schedule of priorities became effective. Under this schedule, only 29 percent of third priority allotments were met.

poseph Creek. A surplus water supply existed in Joseph Creek until July 28. The flow then receded until on September 7 only first priority allotments (four priorities) were served. Thereafter, the flow gradually decreased to 85 percent of first priority allotments at the end of the season.

Thoms Creek. A sufficient water supply existed in Thoms Creek to meet all allotments (three priorities) until August 7. The flow then gradually decreased to 46 percent of third priority allotments at the end of the season.

destroyed by high water on May 30. Data up to that time was salvaged.

Shields Creek. A surplus water supply existed in Shields Creek until July 1.

The flow decreased rapidly until approximately 75 percent of first priority allotments (four priorities) were served on September 1. The supply then gradually increased until the end of September when 60 percent of second priority allotments were being supplied.

Parker Creek. The flow in Parker Creek peaked in mid-May. It then decreased steadily until July 14, when 100 percent of all allotments (four priorities) were still served. From then until the end of July the flow continued to decrease gradually. Throughout the remainder of the season the flow remained

constant at 15 percent of third priority allotments.

North Fork Pit River. A surplus water supply existed in the North Fork Pit River until June 10. On that date the Dorris Reservoir allotment was reduced. The flow then decreased rapidly until June 19 when second priority allotments (five priorities) were being served. The decrease continued until July 26 when only first priority was available. This condition continued throughout the remainder of the season.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 20
NEW PINE CREEK BELOW SCHROEDER'S

	Day	;	March	;	April	:	May	:	June	:	July	;	August	:	September	:	Day
	1 2 3 4 5						13 16 21 28 23		31 28 28 32 34		25 24 23 21 21		12 11 11 11		10 10 10 10 10		1 2 3 4 5
* 1	6 7 8 9 1 0						19 20 23 30 31		32 31 38 43 54		20 20 19 19		11 11 11 11 10		10 10 10 10 10		6 7 8 9 10
	11 12 13 14 15						38 43 57 41 38		43 54 46 54 47		18 17 16 16		10 10 10 10 10		10 10 10 10 9,3		11 12 13 14 15
•	16 17 18 19 20						28 23 23 23 23		50 53 53 47 46		16 15 15 15	•	10 10 10 10 10		9.1 9.0 8.9 8.9 8.9		16 17 18 19 20
	21 22 23 24 25						22 22 23 25 27		53 46 46 43 46		14 14 14 13		10 10 10 10 10		8.9 8.9 8.0 9.0 8.9		21 22 23 24 25
	26 27 28 29 30 31				11* 11 11 13		28 28 31 35 46 40 		46 46 40 35 28		13 13 13 12 12 12 -12-5		10 10 10 10 10		8.9 9.0 9.0 9.0		26 27 28 29 30 31
Ründ Acre	31 lean iff Ti Feet	 	, , , , , , , , , , , , , , , , , , , ,		113		760		2520		<u> </u>		635		562	Rū Ac	Mean noff In re-Feet

^{*} Beginning of Record

TABLE 21
COTTONWOOD CREEK BELOW LARKIN GARDEN DITCH

				50	I I OM	OUD C	W # F #		LAI	KIN GW	Whri	PITON				
Day	;	March	:	April	:	May	:	June	:	July	;	August	:	September	:	Day
1		- Anna Carlotte Communication of the Communication								12 12 12		6.5 6.4 6.3 6.3		1.5 0.9 0.9 0.9 0.9		1 2
3										12		6.3		0.9		3
2 3 4 5										11 11		6.2		0.9		5
										11		6.2 6.0				1 2 3 4 5 6 7 8 9
7 8										11 10		6.0		0.9 0.9 0.8		8
6. 7 8 9 1 0								22*		10 10 9.7		6.0 5.8		0.8 0.8		9 10
11								22		9.4		5.8		0.8		
12								21		9.4 9.0 8.7		5.8		0.8 0.8		12 13
12 13 14 15								20 19 17		8.2		5.8 5.7 5.7 5.6		0.8 0.8		11 12 13 14 15
										8.0		5.6				
16 17								16 15 15 15 15		8.0 8.0		5.6 5.6 5.5 5.2		0.8 0.9		16 17
1 8 1 9 20								15 15		8.0 8.0		5.6 5.5		0.9 0.9		18 19 20
20										7.8				0.8		
21								14 14		7.8 7.4		5.0 4.8		0.8 0.8		21 22 23 24 25
23				,				14		7.1		4.6		0.8		23
21 22 23 24 25								13 14		7.1 7.0		4.1 3.8		0.8 0.9		24 25
								14		7.1		3.1				26 27 28 29 30 31
26 27 28 29 30 31								14 14		7.0 6.9		2.8 2.5		0.9 0.9 1.0		27 28
29								13 13		6.8		2.4		1.0 1.0		29
30 31	_									6.8 6.7 6.6 8.8		2.4 2.0 1.8 5.0				31
Mean	6	*****						15.9						1.5	- Rii	noff In
cre-Fe								662		536		307		53	Ac	re-Feet

^{*} Beginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 22 DAVIS CREEK AT OLD FISH WHEEL

	Day		Mar	ch	:	Apr	11	:	May	<u>y</u> :	į	June	:	July	:	Augu	<u>st</u> :	Se	ptember	:	Day
•	1 2 3 4																				1 2 3 4
	5 6													•							5
	7																				7
	8 9 10			· · · ·		•															8 9 10
	11 12 13				,	•															11 12
	13 14 15	•	• .																		12 13 14 15
	16							NO	RECOR	RD A	VAII	LABLE	FOR	1971	SEAS	ON					16
	17 18 19	ing in Buda																			17 18
	20																		•		19 20
	21 22 23 24 25																•• • •				21 22 23 24 25
	2.4 25						• .														24 25
	26 27										. *			•					•		26 27
	28 29 30 31				· :																26 27 28 29 30 31
a	30 31 ēā n	· · Igan = In	रहान्त		इत्हर	क्टर।			7 m =		-										30 31 Mean
ino	FF T -Fee	n t	लाम स	,		#+#:	ting.	7 C T T			-										Rünöff Acre-Fe

TABLE 23

LINVILLE	CREEK	ΔŢ	OLD	POWER	HOUSE
_	011 11	~ .	0 - 0		110000

		٠, .			LINVILLE	CREEK AT	OLD POWER	HOUSE		
	Day : 1 2 3 4 5	Mar	ch :	April	: May	3.7 3.8 4.3 4.7 4.7	: July 2.5 2.4 2.4 2.4 2.4	2.0 2.0 2.0 2.0 2.0 2.0 2.0	: September 2.0 2.0 2.0 2.0 2.0	: <u>Day</u> 1 2 3 4 5
	6 7 8 9 10					4.5 4.3 4.1 4.0 3.9	2.3 2.3 2.2 2.2 2.2	2.0 2.0 2.0 2.0 2.0	2.0 1.9 1.9 1.9	6 7 8 9 10
	11 12 13 14 15	1				3.7 3.6 3.3 3.2 3.1	2.2 2.2 2.2 2.2 2.2	2.0 2.0 2.0 2.0 2.0	1.9 1.9 1.9 1.9	11 12 13 14 15
	16 17 18 19 20		w si		3.3* 3.2 3.1	3.1 3.0 3.0 2.9	2.2 2.2 2.2 2.2 2.2	2.0 2.0 2.0 2.0 2.0	1.9 1.9 1.9 1.9	16 17 18 19 20
	21 22 23 24 25		,		3.0 2.9 3.0 3.2 3.3	2.8 2.8 2.7 2.7	2.2 2.2 2.2 2.1 2.1	2.0 2.0 2.0 2.0 2.0	1.8 1.8 1.8 1.8	21 22 23 24 25
र्णस्य सं	26 27 28 29 30 31 7 7 7 7	តក្ខាបាល	 ਜਿਜ਼ਾਬਾ ਜਾ	स्टाटा हा न्या	3.4 3.3 3.4 3.7 3.7	2.7 2.6 2.6 2.6 2.5	2.0 1.9 1.9 2.0 2.0 2.0	2.0 2.0 2.0 2.0 2.0 2.0	1.8 1.8 1.8 1.8 1.8	26 27 28 29 30 31
Rűñ Acr	off In- e-Feet	ਜ ਹ ਰ ਹਿਲਦਾ	नां स्वाच्य		91	200	1 35	123	112	Mean Runoff Tn Acre-Feet

^{*} Beginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 24
FRANKLIN CREEK ABOVE DIVERSIONS

Day : Marc	ch : April :	May :	: June :	July	: August :	September	: Day'
1 2 3 4 5		13 14 16 20 19	17 17 22 28 29	11 10 9.5 8.8 8.3	4.5 4.3 4.2 4.2 4.1	3.9 3.9 3.8 3.8 3.9	1 2 3 4 5
6 7 8 9 1 D		18 19 23 25 25	28 26 24 22 21	7.7 6.3 5.1 4.6 4.9	4.1 4.1 3.9 3.9 3.8	3.9 3.8 3.7 3.7 3.7	6 7 8 9 10
11 12 13 14 15		26 28 25 13 13	18 18 17 16 15	4.7 4.9 5.3 5.4 5.4	3.8 3.9 3.8 3.8 3.8	3.7 3.7 3.7 3.7 3.6	11 12 13 14 15
16 17 18 19 20		14 14 14 15 15	15 14 14 14 14	5.3 5.1 5.1 5.1 5.1	3.8 3.8 3.9 3.9 3.9	3.6 3.6 3.6 3.6	16 17 18 19 20
21 22 23 24 25	7.4* 7,4 6.6 6.8	14 13 13 13	13 13 13 13	5.1 5.0 4.7 4.6	3.8 3.8 3.8 3.8 3.8	3.6 3.4 3.7 3.9	21 22 23 24 25
26 27 28 29 30 31	7.5 8.0 9.8 12	16 17 17 18 18	14 13 13 12 12	4.6 4.6 4.6 4.5 4.5 5.8	3.8 3.8 3.9 3.9 4.1	4.1 4.1 4.1 4.1 4.1	26 27 28 29 30 31
Runoff In Acre-Feet	154	1070	1030	356	241	224	Runoff In Acre-Feet

^{*} Beginning of Record

TABLE 25
JOSEPH CREEK BELOW COUCH CREEK

Day : 1 2 3 4 5	March :	April :	May : 41 39 51 52 51	June : 50 58 68 71 68	July 22 21 19 17	6.6 5.9 5.7 5.7 5.0	September 2.2 2.3 2.3 2.2 2.2	Day 1 2 3 4 5
6 7 8 9 1 0			45 42 65 72 65	65 64 63 62 59	16 18 16 14 15	4.8 4.7 4.7 4.6 4.4	2.3 2.5 2.2 2.1 2.0	6 7 8 9 10
11 12 13 14 15			64 63 63 54 51	54 51 48 45 42	13 13 12 12 11	4.2 4.1 4.0 4.0 3.8	2.0 2.0 2.0 2.0 2.0	11 12 13 14
16 17 18 19 20	7• •		48 42 36 32 31	42 38 36 32 30	11 11 11 11 10	3.7 3.7 4.0 4.0 3.7	2.0 2.0 2.0 2.1 2.1	16 17 18 19 20
21 22 23 24 25		34* 30 29	30 27 26 27 29	29 28 28 26 32	10 9.3 9.0 8.5 8.2	3.4 2.9 2.9 2.9 2.2	2.1 2.1 2.1 2.1 2.2	21 22 23 24 25
26 27 28 29 30		32 32 33 37 41	36 36 37 45 47	44 36 31 26 24	7.6 7.3 7.1 6.8 6.6	2.2 2.1 2.1 2.1 2.1 2.2	3.2 3.7 3.1 3.1	26 27 28 29 30 31 Mean
29 30 31 Tanoff In Acre-Feet	हिन्द्र स्थापन स्था स्थापन स्थापन	532 532	45 44.9 2760	2680	748	235	137	Runoff In Acre-Feet

^{*} Beginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA 🕾 🦮

TABLE 26 North fork pit river below thoms creek

Day 2 3 4 5 6 7 8 9	* March :	April :	May : 135 134 137 213 179 473 169 233 242 203	June 345 345 213 147 109 85 69 53 43	July, 19 18 16 14 15 16 16 16	6.2 5.0 3.3 3.1 2.8 2.6 1.8 1.8 3.1	: September	Day 1 2 3 4 5 6 7 8 9 10
11 12 13 14 15			191 191 194 177 168	28 21 19 19	16 16 16 17	3.3 3.6 3.6 3.6 3.6	8.0 8.0 8.0 6.8 5.0	11 12 13 14 15
16 17 18 19 20			151 143 205 188 183	1 8 1 8 1 8 1 8	17 16 16 17 15	3.4 3.3 3.2 3.1 3.1	5.0 4.5 4.3 4.3 4.2	16 17 18 19 20
21 22 23 24 25			180 172 170 169 167	18 18 17 15 18	16 16 14 14	3.1 3.1 3.1 2.9 2.9	4.2 4.0 3.6 3.4 3.1	21 22 23 24 25
26 27 28 29 30 31		122* 122 124 129 134	102 118 122 213 265 295	50 47 40 30 23	8.8 7.4 5.0 4.2 4.0	2.8 2.8 3.8 8.8 15	3.8 6.8 6.8 4.6 5.0	26, 27, 28 29 30 31
Runoff Tr Acre—Fee	रवास्त्रस्य हास्य हान्य हार्य इत्य व्यावस्य क्ष्या स्थापन	126 1250	11070	3810	846	260	51 2	Runoff In Acre-Feet

^{*} Beginning of Record

JONG ODERK AT CENADVILLE_ALTIDAS HIGHWA

			- 1			THUMS	CKEEK A	I REDAKA	ILLE-ALTUKA	15 HIGHWAY				
	Dąÿ	•	Ma	rch	April	;	May :	June	: July	: August	: Ser	tember	:	Day
•	1 2 3 4 5			42 T 1/10C	Active British	· .	74 73 82 85 77	66 41 97 125 95	14 14 13 12	4.4 3.3 3.2 2.8 2.2		1.4 1.4 1.4 1.3		1 2 3 4 5
	6 7 8 9 10						63 61 66 63 63	85 82 69 61 59	11 12 9.4 8.7 8.5	2.2 2.2 1.9 1.9		1.3 1.5 1.3 1.2		6 7 8 9 10
	11 12 13 14 15					• •	61 66 80 68 62	51 47 42 38 34	7.8 7.1 6.5 6.1 5.7	1.7 1.7 1.8 1.8		1,2 1.2 1.2 1.2		11 12 13 14 15
	16 17 18 19 20						53 46 40 36 33	29 25 23 22 20	5.7 5.5 5.5 5.3	1.5 1.5 1.5 1.5		1.0 1.0 1.0 1.0		16 17 18 19 20
	21 22 23 24 25				82* 81 80 78 81		29 27 25 25 27	21 17 16 14 16	5.3 4.9 4.7 4.7	1.4 1.4 1.3 1.2		1.2 1.2 1.2 1.2		21 22 23 24 25
•	26 27 28 29 30		, , ,	·	90 97 75 71 75	. · ·	3 2 31 35 45 45 63	27 21 20 17 16	4.0 3.8 3.5 3.2 3.0 4.6	1.3 1.3 1.4 1.4 1.4		1.7 2.1 2.2 2.7 2.8		26 27 28 29 30 31
üñi	Mēāņ 5 f f e-Fe	rñ?? et	स्थान्त्र सम्बद्धि	សត្តកម្ គេសភាគសុគ្	- 1610	0	7 <u>52</u> _2_ 3240	2570	438	112		1.4 3	์ - Ruñ	Mean off In e-Feet

^{*} Beginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREASER 1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 28 PARKER CREEK AT FOGARTY RANCH 12 2005

Day :	Harch	: April	: May	: June	: July		: September	Day
1 2 3 4 5						18 9.0 7.8 7.4 6.7	4.7 4.7 5.4 5.0 4.0	1 2 3 4 5
6 7 8 9 10				f		6.0 5.4 4.7 4.4 3.7	5.7 9.0 5.7 4.0 3.7	6 7 .8 9 10
11 12 13 14 15						4.0 4.0 4.0 4.0 4.0	3.5 3.7 3.7 3.5 3.5	11 12 13 14 15
16 17 18 19 20						4.0 4.0 4.0 4.0 4.0	3.5 3.7 4.0 4.0 4.4	16 17 18 19 20
21 22 23 24 25		•				4.0 4.0 3.5 4.0 4.0	5.0 5.0 5.4 6.0 6.7	21 22: 23: 24 25
26 27 28 29 30	ė ė ė turi e turi e		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		12* 11 9.4 6.7 6.7 9.4	4,7 5,7 5,7 5,7 4,0 4,4	12 12**	26 27 28 29 30 31
31 Maan Runoff In Acre-Feet	ந்த செய்தா சர ு	, .			109	323	281	31 Mean Runoff In Acre-Feet

^{*} Beginning of Record ** End of Record

TABLE 29 SHIELDS CREEK BELOW PEPPERDINE RANCH

		SHIFTD	S CRE	EK BELOM H	EALEKOINE	KANUH		
Day ;	March:	April : 1	May :	: June	; July	August	: September	: Day
1 2 3 4 5	the trade of the total	Free Control of		110 115 110 90 70	1 0 1 0 9.3 8.8 8.4	5.1 5.1 5.1 4.8 4.2	3,8 3.8 3.8 3.8 3.8	1 2 3 4 5
6 7 8 9 1 0			40* 80 70 52	57 44 37 34 39	8.2 8.2 7.8 7.7 7.5	3.7 3.2 2.8 2.5 2.4	5,3 8,0 2.7 2.6 2.6	.6 7 8 9 10
11 12 13 14 15			46 45 45 37 32	29 26 23 20 18	7.5 7.3 7.1 6.8 6.4	2.3 2.2 2.1 2.9 3.7	2,6 2.6 2.6 2.5 2.5	11 12 13 14 15
16 1.7 1.8 1.9 2.0			3 0 26 23 20 1 8	15 16 16 15 14	6.4 6.2 9.7 8.0 7.1	3.7 3.7 3.7 3.8 3.9	2.5 2.6 2.7 2.8 2.9	16 17 18 19 20
21 22 23 24 25		. !	17 14 13 13	13 12 11 10 13	6.6 6.1 5.7 5.3 5.1	4.0 4.0 4.1 4.1 4.1	2.9 2.9 2.9 2.9 2.8	21 22 23 24 25
26 27 28 29 30			10 18 31 80 95 38-2-	95 24 16 13 11	5.1 5.2 5.2 5.1	4.1 4.1 4.0 4.0 3.8	2.9	26 27 28 29 30
Runoff ja		1 8		2214	432	22 1	174 3 174	Mean Runoff In Acre—Feet
r Beginnir	ng of Record						y	and the second of

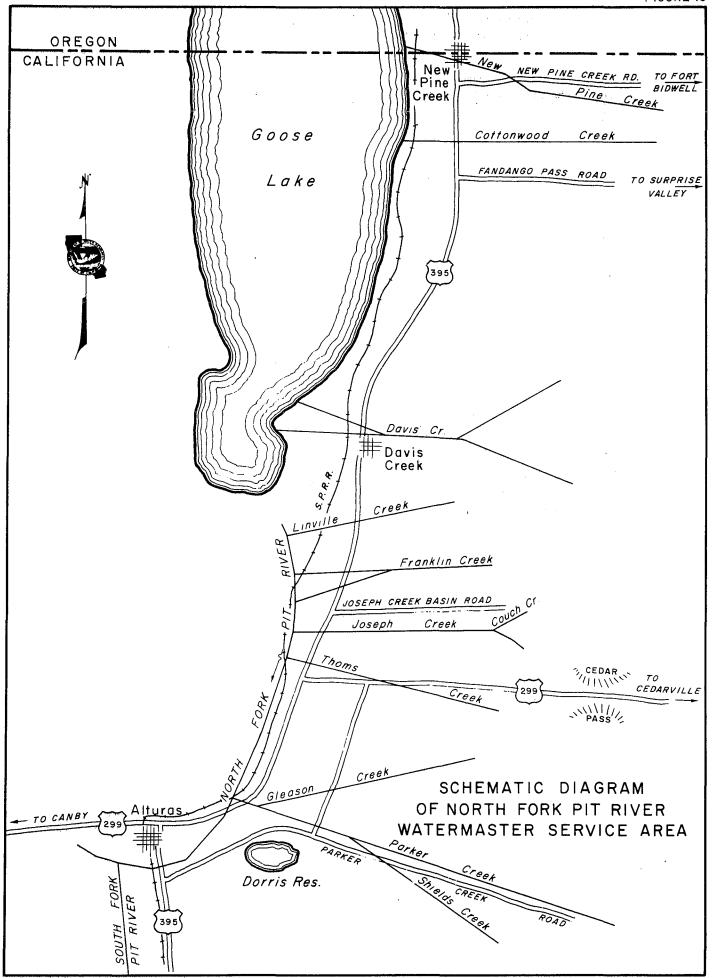
^{*} Beginning of Record ** End of Record

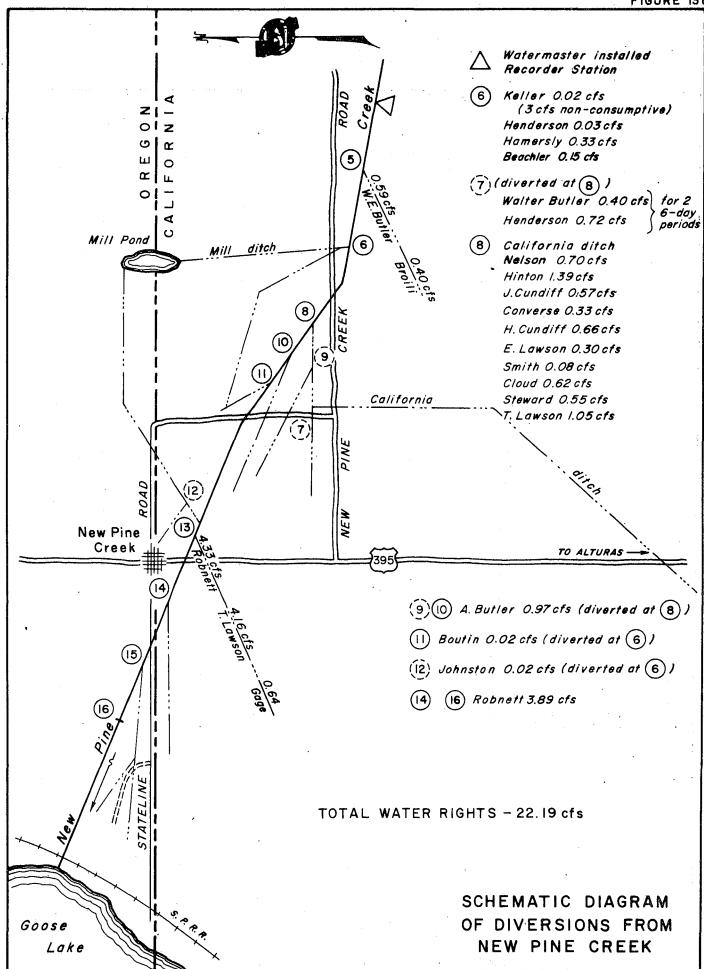
NORTH FORK PIT RIVER WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

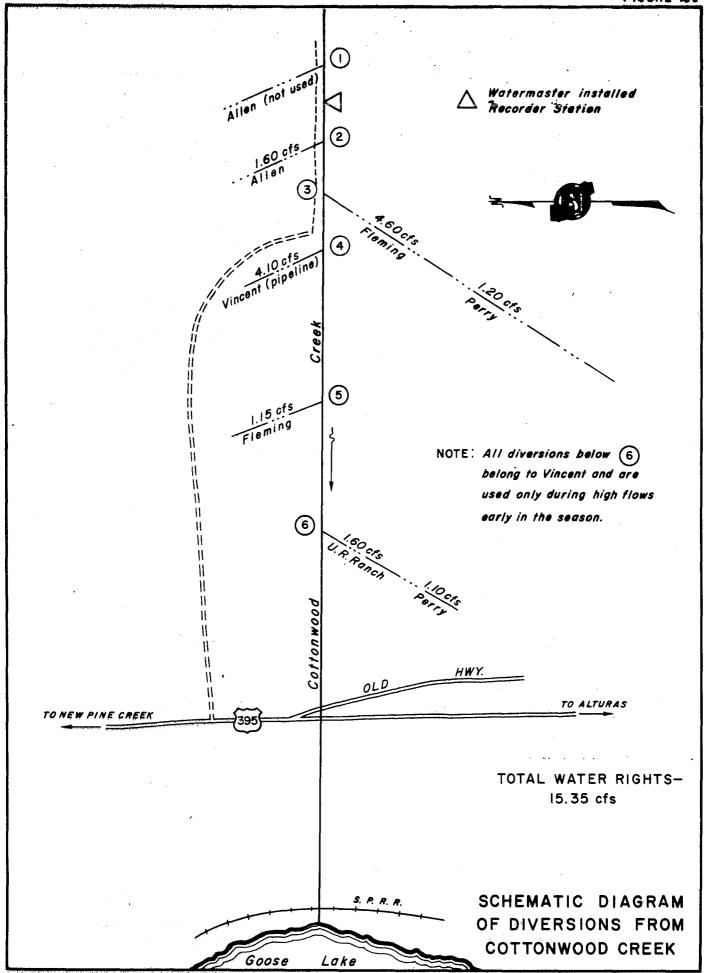
TABLE 30 PARKER CREEK ABOVE HIGHWAY 395 NEAR ALTURAS

Day :	March	: April :	May : 47 45 59 101 84	92 85 77 63 52	July : 11 11 10 10	9.0 4.9 4.1 3.8 3.0	: <u>September</u> 1.3 1.4 1.3 1.6 1.6	: Day 1 2 3 4 5
6 7 8 9			71 66 76 85 68	42 30 25 24 22	10 10 10 9.6 9.5	2.9 2.1 2.0 2.0 2.0	1.3 2.0 2.0 1.7 1.5	6 7 8 9 10
11 12 13 14 15			62 60 60 51 45	21 20 19 18 17	9.0 9.0 8.7 8.5 9.0	2.0 2.1 2.0 1.7	1.5 1.5 1.6 1.6	11 12 13 14 15
16 17 18 19 20	· •		40 34 31 28 26	16 16 15 14 14	8.7 7.5 8.7 14	1.5 1.4 1.4 1.4	1.3 1.3 1.3 1.3	16 17 18 19 20
21 22 23 24 25			24 22 20 15 12	13 13 12 12 12	9.8 9.0 7.1 6.5 5.0	1.1 1.1 1.2 1.3 1,1	1.4 1.6 1.5 1.3	21 22 23 24 25
26 27 28 29 30 31		46* 46 50 49	9.2 13 30 66 76 92	11 11 11 11 11	4.8 4.3 3.9 3.2 3.3	1.3 1.1 1.0 1.1 1.2 1.2	2.8 4.3 3.2 3.4 5.6	26 27 28 29 30
Runoff Fri Acre-Feet	ास्त्राच्या प्राच्या है। चित्राच्या स्टब्स्टिटिटिटिटिटिटिटिटिटिटिटिटिटिटिटिटिटिट	379	3010	1580	506	129	111	Runoff In Acre-Feet

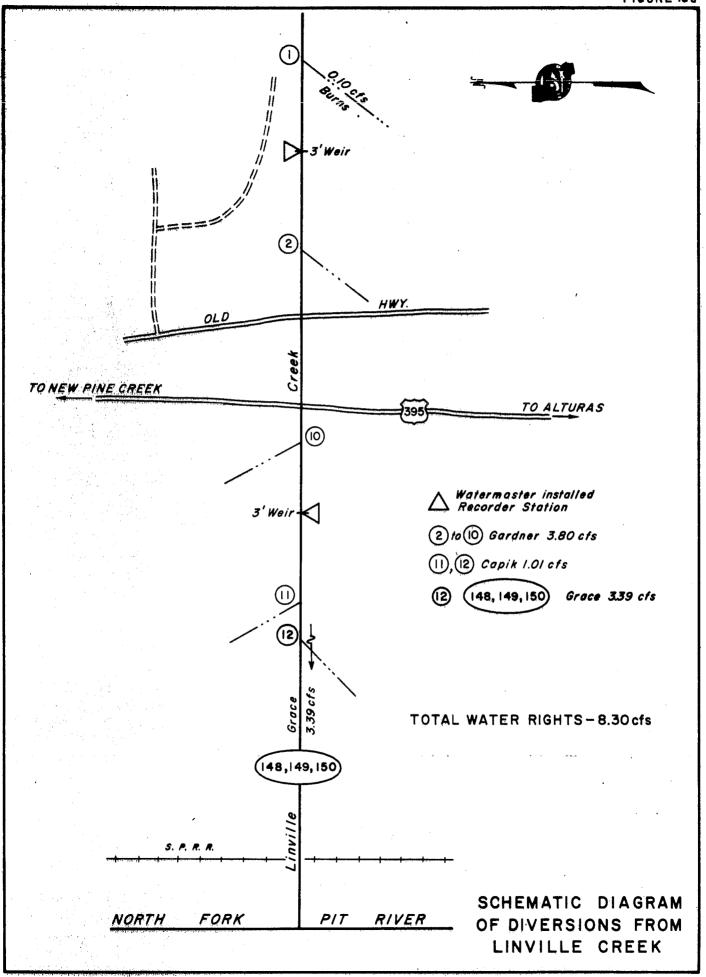
^{*} Beginning of Record

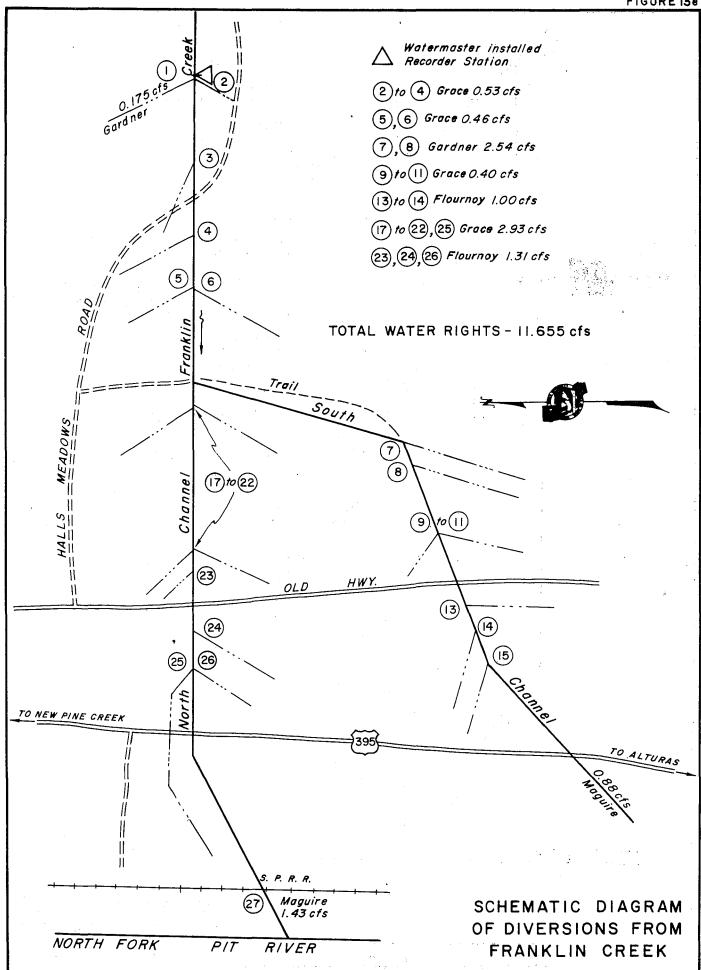


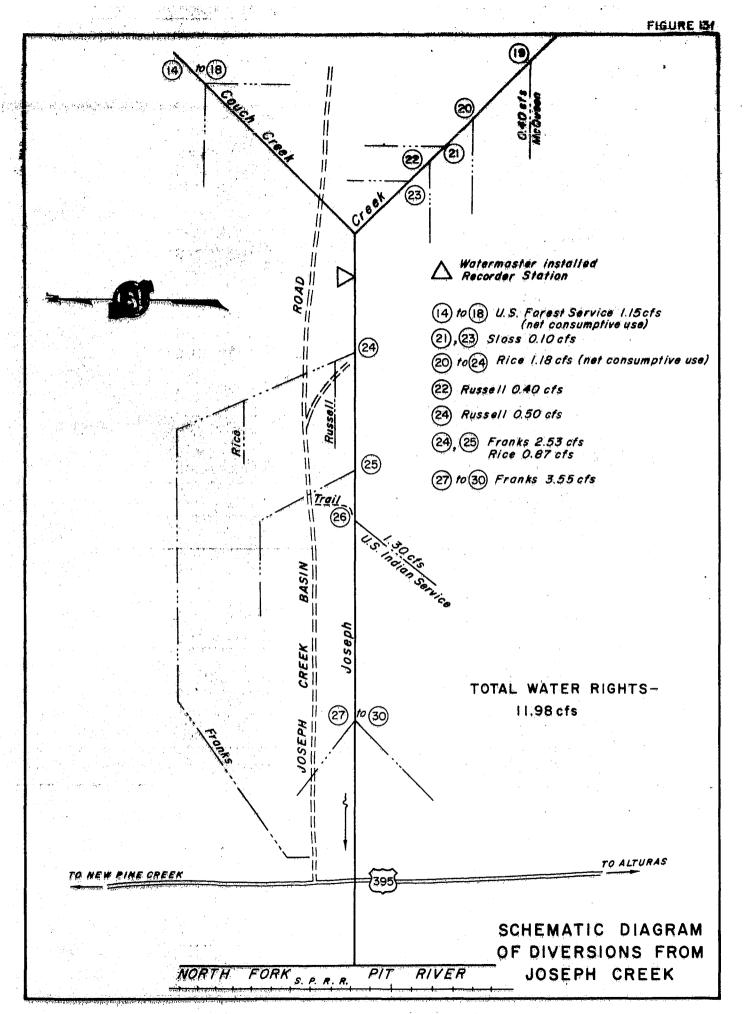


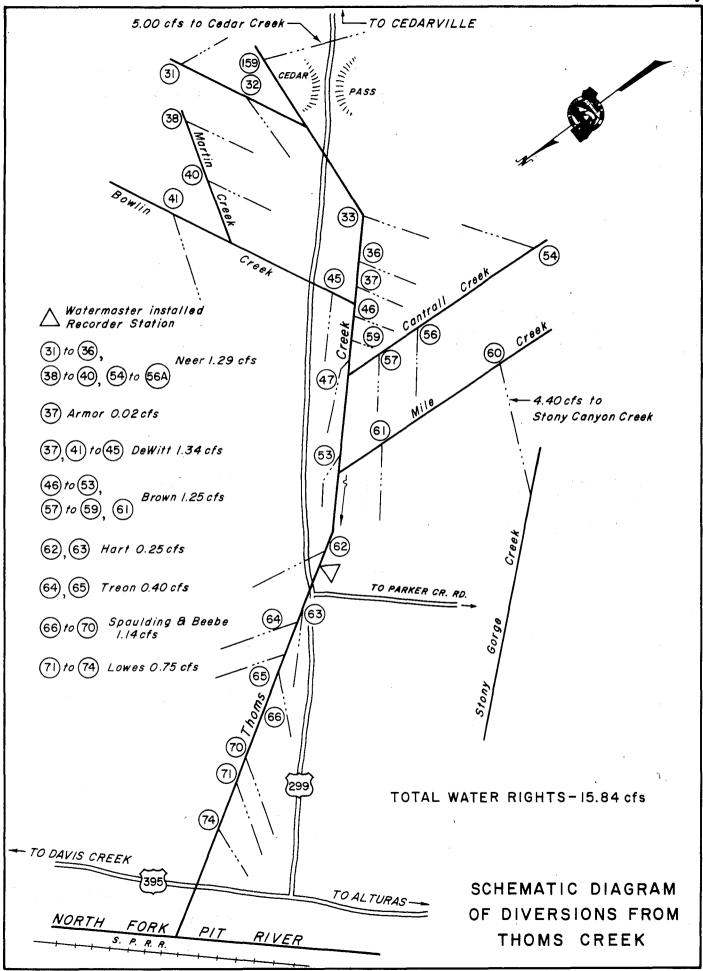


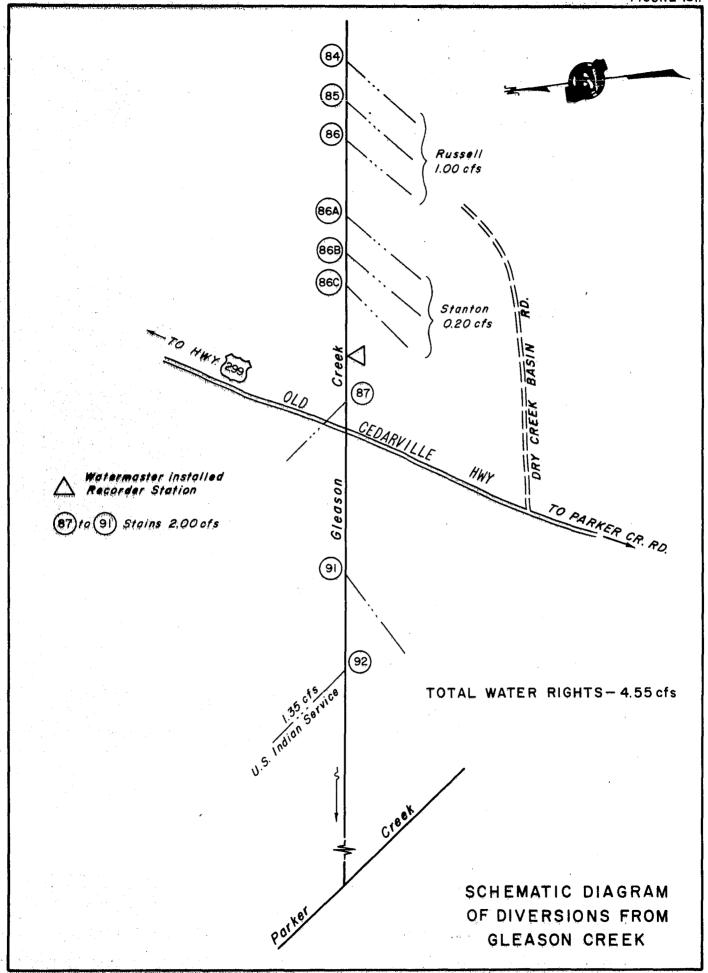
Lake

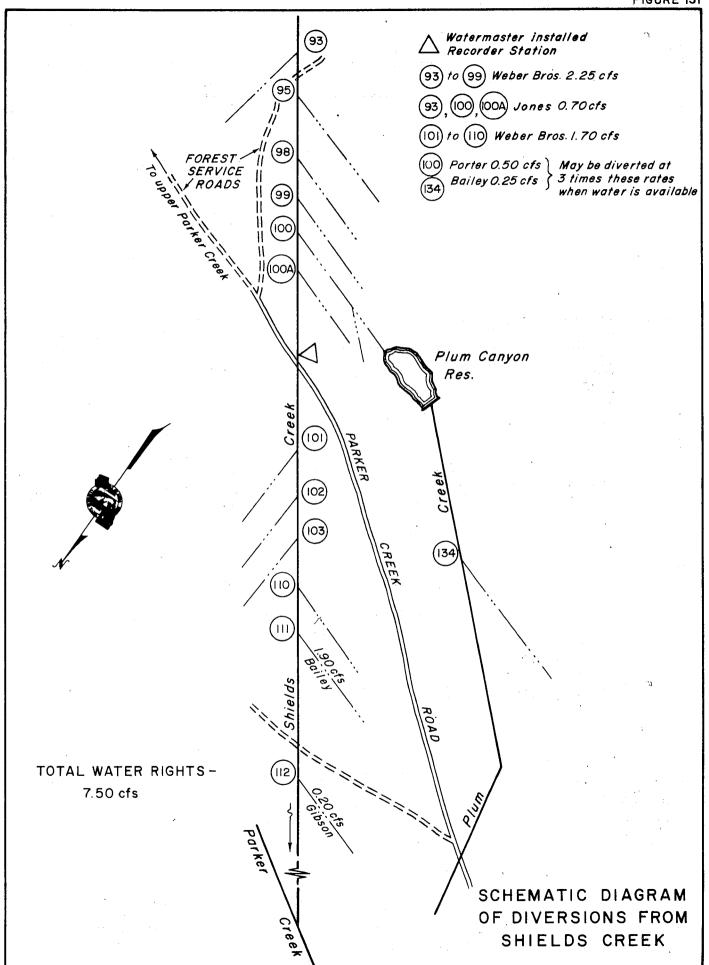


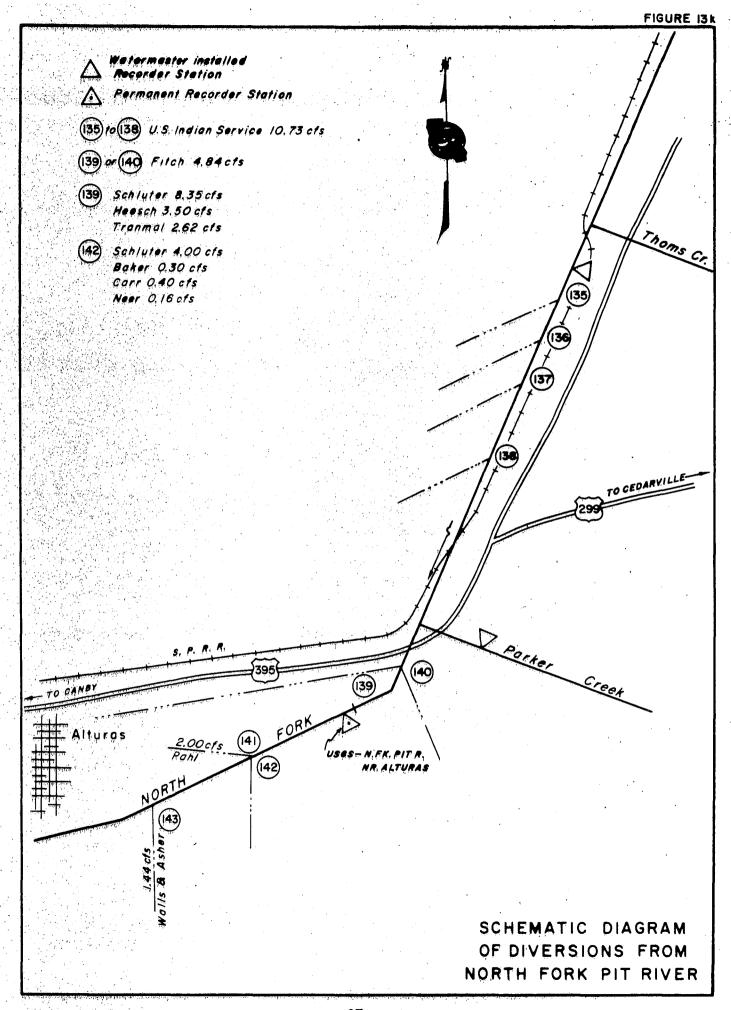












Shackleford Creek Watermaster Service Area

The Shackleford Creek service area is located in western Siskiyou County near the town of Fort Jones in Scott Valley. There are 41 water right owners in the service area with total allotments of 64.73 cubic feet per second. The major sources of water supply for this service area are Shackleford Creek, which flows through the Central part of Quartz Valley, and its tributary, Mill Creek, which rises east of the headwaters of Shackleford Creek. Evans Creek, a small tributary to Mill Creek, enters from the south.

The service area encompasses the Quartz Valley region of Scott Valley and includes the entire agricultural area within the Shackleford Creek Basin. It is about two miles wide by six miles long with the main axis and drainage running from south to north. Elevations on the agricultural area range from about 3,100 feet at the south to about 2,650 feet at the confluence of Shackleford Creek and Scott River.

Schematic drawings of the Shackleford Creek stream system are presented as Figures 14 and 14a. pages 100 and 101.

Water Supply

The water supply for Shackleford Creek is derived from snowmelt runoff, springs and seepage, and supplemental stored water released from Cliff Lake and Campbell Lake. These lakes are located near the headwaters of Shackleford Creek.

The watershed of the Shackleford Creek stream system contains about 31 square miles, located in the heavily forested, steep, mountainous terrain of the northeasterly slopes of the Salmon Mountains. It varies in elevation from about 7,000 feet along its west rim to about 3,000 feet at the foot of the slopes bordering

Quartz Valley. Snowmelt runoff is normally sufficient to supply all demands until the middle of July. The supply then usually decreases until the first part of August when water is released from Cliff and Campbell Lakes to maintain sufficient flow for second priority allotments in the Shackleford Ditch.

Method of Distribution

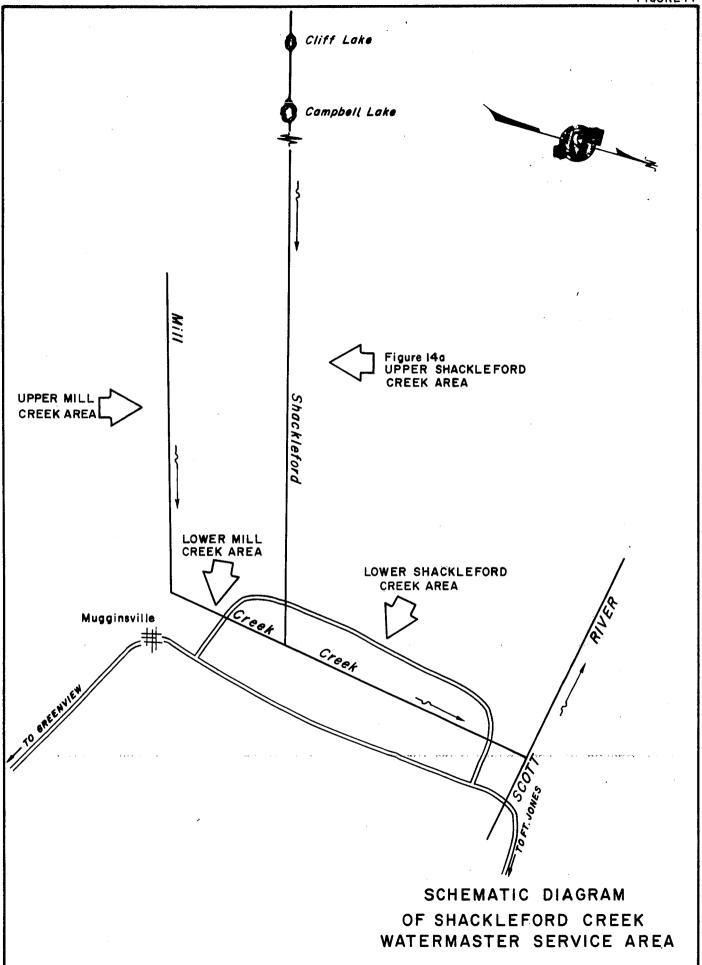
Irrigation is accomplished primarily by wild flooding of permanent pasture and alfalfa fields. Water is distributed by ditches and laterals to the places of use. Shackleford Ditch, the largest of these ditches, has a length of about 6 miles and a capacity of about 12 cubic feet per second.

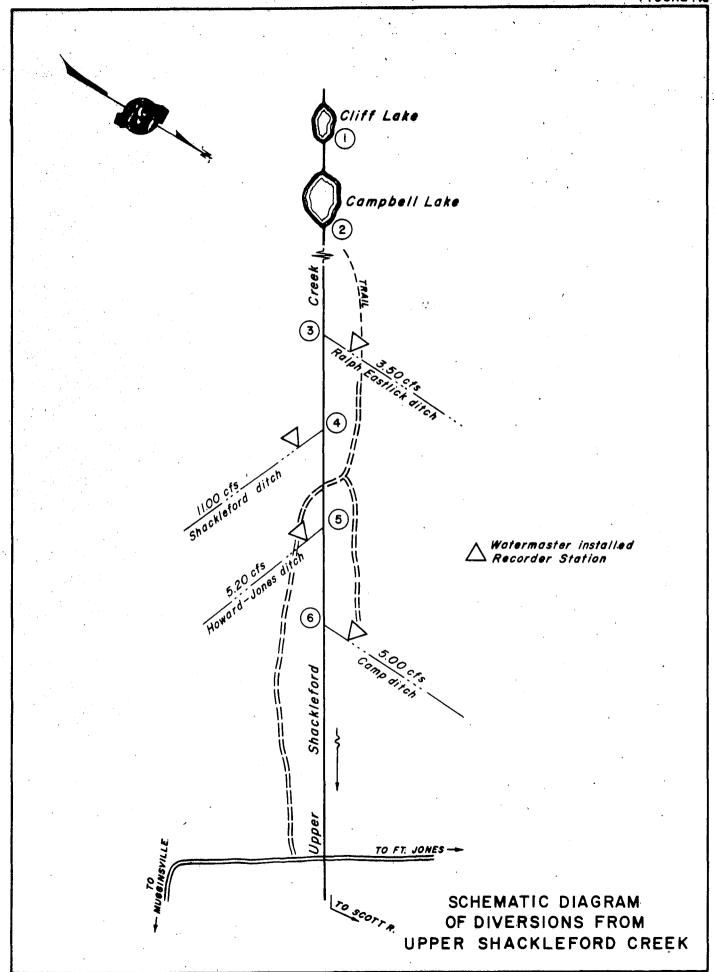
The Shackleford Creek decree (see Table 1) provides four separate areas of distribution within the service area and establishes the following number of priority classes for these areas: Upper Shackleford Creek - seven; Lower Shackleford Creek - seven; Upper Mill Creek - three; and Lower Mill Creek - two.

1971 Distribution

Watermaster service began June 1 in the Shackleford Creek service area and continued until September 30. John Nolan, Water Resources Technician II, was watermaster during this period.

The available water supply was above normal early in the season and about normal after August 1. Fourth priority water rights were shut off in early August, and as flow continued to recede, third priorities had to be shut off in late August. After that there were only first and second priority allotments available through September in decreasing amounts.





Shasta River Watermaster Service Area

The Shasta River service area is located in the central part of Siskiyou County, south and east of the town of Yreka. There are 107 water right owners in the service area with total allotments of 594.612 cubic feet per second.

The source of water supply is Shasta River and its several tributaries. upper reaches of the service area are served by two groups of tributaries. One group, comprising Boles, Beaughan, Carrick, and Jackson Creeks, rises on the northwestern slopes of Mount Shasta. The other group, consisting of Dale and Eddy Creeks, and Shasta River west of U. S. Highway 99, rises on the eastern slopes of the Trinity Mountains. All these streams join the main stem Shasta River above Dwinnell Reservoir near the town of Weed. As the Shasta River flows northward from Dwinnell Reservoir to its confluence with the Klamath River, north of Yreka, it is joined by three major tributaries. Parks Creek, rising on the eastern slopes of the Trinity Mountains, enters from the west near the town of Gazelle. Big Springs Creek, from Big Springs Lake, enters from the east about a mile below Parks Creek. Little Shasta River, rising on the western slopes of the mountainous area between Butte Valley and Shasta Valley, enters from the east near the town of Montague.

The place of use is in Shasta Valley which is approximately 30 miles long and 30 miles wide. The valley has numerous small, coneshaped, volcanic hillocks scattered throughout its central portion that produce the effect of dividing the area into a number of distinctively separate parts. Because of these formations only about 141,000 acres of the approximately 507,000 acres within the valley are irrigable. The valley floor elevation averages approximately 3,000 feet.

A schematic drawing of each major stream system within the Shasta River service area is presented as Figures 15 through 15i, pages 110 through 119

Water Supply

The water supply for Shasta Valley is derived from snowmelt runoff, springs and underground flow, and occasional summer thundershowers. In several portions of the stream system the spring and underground flow is adequate to supply most allotments throughout the season. Much of the underground flow is derived from the northern slopes of Mount Shasta, which rises to an elevation of 14,162 feet at the south end of Shasta Valley. Although the snowpack on Mount Shasta is usually heavy, there is negligible surface runoff.

Parks Creek, Upper Shasta River, and Little Shasta River derive a major portion of their water supply from snowmelt runoff. This flow is usually adequate to supply all allotments until the middle of May.

Beaughan Creek, Carrick Creek, Shasta River from Boles Creek to Dwinnell Reservoir, Big Springs, and Lower Shasta River have enough runoff from springs to supply a large percentage of the allotments throughout the season.

Records of the daily mean discharge at several stream gaging stations in the Shasta River service area are presented in Tables 31 through 37, pages 106-109.

Method of Distribution

Irrigation of permanent pasture and alfalfa lands is accomplished principally by wild flooding. Much of the return water is recaptured and used on lower pasture lands. Sprinkling systems are used for irrigating some alfalfa and grain lands.

Water is diverted primarily by diversion dams and then conveyed by ditch or canal to the place of use. The largest and longest canal in the area is the Edson-Foulke Yreka Ditch, which has a capacity of about 60 cubic feet per second and a length of about 15 miles. Water is also supplied into ditch systems by pumped diversions. The largest of these belong to three irrigation districts. Several riparian water right owners also use pump diversions.

Many privately owned storage reservoirs exist in the area. Water storage from these reservoirs is used to supplement continuous-flow allotments.

The Shasta River decree (see Table 1) provides eight separate areas of distribution within the service area. This decree established the following number of priority classes for these areas: Shasta River above the confluence with Big Springs Creek - 43; Jackson Creek - 7; Parks Creek - 25; Shasta River below the confluence with Big Springs Creek - 29: and Little Shasta River - 7.

Three privately operated water districts within the service area have main diversions which are under supervision of the watermaster. These are: Shasta River Water Users Association, Grenada Irrigation District, and Big Springs Irrigation District. A fourth, the Montague Water Conservation District, stores water in Dwinnell Reservoir for use by the District and by natural flow water right owners immediately below the dam. The watermaster is responsible for diversion to these users.

A number of riparian water users along the Lower Shasta River were not included in the Shasta River decree. Owners of these undefined water rights are therefore not subject to watermaster supervision; consequently, in seasons of short supply these rights can be the cause of many water distribution problems.

1971 Distribution

Watermaster service began April 1 in the Shasta River service area and continued through September 30. John A. Nolan, Water Resources Technician II, was watermaster during this period.

The available water supply in the service area was generally above average during the season.

Parks Creek. The flow in Parks Creek was sufficient to supply all allotments (25 priorities) until late July. Some water continued to be diverted into the Yreka Ditch until mid-August. The first priority allotments of 6 cubic feet per second were available until September 1, after which time the first priority allotments were met in decreasing amounts for the remainder of the season. Water users downstream from the lowest first priority diversion received a portion of their allotments during the latter part of the season from return flow and from water rising in the gravel streambed.

Upper Shasta River. During early spring, enough water was available to satisfy all allotments (eight priorities). As the flow decreased, the following levels of priority allotments were met: August 12 - all of fourth priority; August 23 - all of third priority (Yreka Ditch main allotment); and September 13 (the seasonal low) - 20 percent of third priority.

Shasta River from Boles Creek to Dwinneil Reservoir. Boles Creek and Shasta
River from Boles Creek to Dwinnell Reservoir were operated as one stream, under a long-standing oral agreement among
the water right owners, with water being
distributed on an equal and correlative
basis. Adequate water was available to
satisfy all allotments until the middle
of August. All diversions were then
cut to 65 percent. In late September
the flow increased to again allow diversion of 100 percent of allotments.

Beaughan Creek. The flow of Beaughan Creek was sufficient to satisfy most

demands (five priorities) for the entire season. The creek is routed through a mill pond owned by the International Paper Company which uses approximately 35 percent of the flow for industrial purposes.

Carrick Creek. The water supply in Carrick Creek was adequate to satisfy all allotments (13 priorities) during the entire irrigation season.

Little Shasta River. Enough water was available in Little Shasta River to satisfy all fifth priority allotments (seven priorities) until late July, at which time full regulation became necessary to adequately distribute this priority. The flow continued to decrease to approximately 25 percent of the fourth priority allotments by the end of August. It then stayed constant for the remainder of the season.

The daily mean discharge of Little Shasta River near Montague is presented in Table 35, page 108. This runoff is augmented by rising water along the river channel, and by substantial inflow from Cleland Springs, a tributary approximately 2 miles below the stream gaging station. Therefore, considerably more water is available for distribution at downstream diversion points than in the discharge table.

Dwinnell Reservoir. Releases from Dwinnell Reservoir to Montague Water Conservation District commenced on April 20 and continued into October. Reservoir operation data from the 1971 season are Shown in Tables 33 and 34, pages 107 and 108.

By agreement with the Montague Water Conservation District, water users on Shasta River below Dwinnell Reservoir received stored water from the reservoir on demand in lieu of their natural flow rights. The agreement allotment totals and the amount delivered to each user this season are shown in the tabulation below.

Big Springs. The flow of Big Springs was sufficient to satisfy approximately 50 percent of third priority allotments through the first half of the season. Usually during July, August, and September, the flow in Big Springs increases as snowmelt from higher elevations on Mount Shasta percolates into the ground and reappears as surface flow at Big Springs Lake. As a result, Big Springs Irrigation District, a third priority water right owner, was able to pump its full allotment from late July through the remainder of the season.

Lower Shasta River. The water supply in Lower Shasta River was sufficient to satisfly all allotments (29 priorities) for the entire season.

DELIVERIES TO NATURAL FLOW WATER RIGHT OWNERS BELOW DWINNELL RESERVOIR - 1971

Name of Water Right	Allotment in	Allotment Delivered from Dwinnell Reservoir				
Owner	Acre-Feet	Acre-Feet :	% of Allotment			
Flying L Ranch.	198	-0-	-0-			
Frank Ayers	464	274.3	59.1			
J. N. Taylor	1,200	1,187.5	99.0			
Lake Shastina Properties, Inc. Hole-in-the Ground Ranch Seldom Seen Ranch	596 924	-0- 793.0	-0- 85.8			
Totals	3,382	2,254.8	66.7			

SHASTA RIVER WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 31 SHASTA RIVER AT EDGEWOOD

Day : 1 2 3 4 5	82 80 82 82 82 78	99 96 94 96 96	May 69 76 142 168 147	June : 115 76 66 66 67	40 35 28 26 25	August 10 9.8 8.9 8.5 8.5	9.8 9.8 9.8 9.8 9.4 9.8	Day 1 2 3 4 5
6 7 8 9 10	76 75 73 66 67	94 94 90 181 155	113 120 305 243 199	75 82 83 85 88	22 21 21 20 21	8.5 8.5 8.1 8.5 8.1	9.8 10 10 9.8 9.8	6 7 8 9 10
11 12 13 14 15	90 168 120 105 94	1 09 87 90 87 90	196 220 211 168 142	82 78 78 73 66	20 19 16 14 13	8.1 8.1 8.1 7.8	9.8 9.8 10 11 10	11 12 13 14 15
16 17 18 19 20	99 94 87 83 83	92 90 82 75 90	135 124 98 96 83	66 67 67 69 67	12 13 15 24 23	8.1 8.5 8.9 8.9	10 10 11 9.4 9.4	16 17 18 19 20
21 22 23 24 25	85 131 278 181 317	87 73 73 73 66	73 69 73 90 126	63 53 56 52 56	17 16 15 14 14	8.9 9.8 9.4 9.4	8.9 9.8 9.4 9.8 10	21 22 23 24 25
26 27 28 29 30 31	452 286 217 138 117 109	63 66 62 62 66	181 131 155 155 135 124	73 62 51 44 42	13 13 12 12 11	9.8 9.4 8.5 8.5 8.5	11 12 12 15 18	26 27 28 29 30 31
Mean Runoff In Acre-Feet	132 8120	5310	8660	4100	1140	539	10.5 623	31 Mean Runoff In Acre-Fee t

TABLE 32
PARKS CREEK ABOVE EDSON-FOULKE YREKA DITCH

Day :	March :	April :	May	: June :	July :	August	September	: Day
1 2 3 4 5	t.			95 91 82 88 93	38 35 33 32 31	3.6 4.7 6.2 6.2 11	12 10 3.5 3.1 3.1	1 2 3 4 5
6 7 8 9 1 0		•	158*	100 105 104 100 100	30 28 28 25 24	16 17 16 11 3.8	3.1 3.1 3.1 3.1	6 7 8 9 10
11 12 13 14 15	. *		161 171 164 147 139	96 96 95 94 91	24 23 22 22 21	3.8 3.8 3.7 3.7	3.1 3.1 3.1 3.1 3.0	11 12 13 14 15
16 17 18 19 20			126 110 105 105 107	90 88 88 85 82	21 20 20 20 21	3.7 3.7 3.7 3.7 3.5	3.0 3.0 3.0 3.0 3.0	16 17 18 19 20
21 22 23 24 25			95 95 104 118 131	80 74 67 65 63	21 20 18 18 17	3.5 3.5 3.5 3.5 3.5	3.0 3.0 3.0 3.0	21 22 23 24 25
26 27 28			128 117 131 129 115	59 57 53 50 47	16 15 14 14	3.5 7.1 11 11	3.0 3.0 3.0 3.0	26 27 28 29 30 31
30 31 Mean Runoff In Acre-Feet			101 [26 5470	4910	1370	408	213	Runoff In Acre-Feet

* * *

^{*} Beginning of Record

SHASTA RIVER WATERMASTER SERVICE AREA October 1, 1970 through September 30, 1971 (in acre-feet)

TABLE 33
DAILY MEAN STORAGE IN DWINNELL RESERVOIR

	Day	Oct.	Nov.	Dec.	Jan.	<u>Feb.</u>	<u>Mar.</u>	Apr.	<u>May</u>	<u>June</u>	July	Aug.	Sept.	Day
	1	13,250	12,440	18,770	25,850	37,170	40, 280	44,690	45,750	48,350	43,860	35,490	27,130	. 1.
	2	13,140	12,480	19,020	26,000	37,320	40,300	44,800	45,680	48,330	43,630	35,180	26,980	2
	3	13,090	12,540	19, 330	26,070	37,420	40,320	44,890	45,700	48,290	43,410	34,930	26,800	3
	4	12,980	12,650	19,610	26, 150	37,560	40,340	44,980	46, 150	48, 220	43,180	34,590	26,660	4
	5	12,850	12,910	20,030	26,220	37,700	40,360	45,030	46,370	48,150	42,900	34,090	26,450	:5
	6	12,760	13,140	20,520	26,300	37,800	40,380	45,110	46,470	48,080	42,630	33,820	26,270	. 6
	7	12,650	13,260	21,010	26,370	37,900	40,380	45, 200	46,530	47,930	42,460	33,480	26, 100	7
	8	12,590	13,370	21,570	26,450	38,000	40,400	45,250	46,920	47,730	42,080	33,140	25,930	8
	9	12,510	13,610	21,990	26,520	38,100	40,420	45,390	47,280	47,590	41,810	32,920	25,780	9
	10	12,460	13,910	22,270	26,670	38,190	40,420	45,790	47,460	47,480	41,420	32,640	25,630	10
	11 、	12,400	14,140	22,480	26,750	38,340	40,420	45,900	47,640	47,320	41, 130	32,400	25,480	11
	12	12,350	14,500	22,690	26,850	38,500	40,540	45,990	47,860	47,180	40,840	32,160	25,330	. 12
	13	12,290	14,650	22,830	26,930	38,670	40,790	46,060	47,950	47,030	40,620	31,920	25,100	13
	14	12,230	14,790	23,010	27,050	38,840	40,840	46,110	48,260	46,890	40,350	31,600	24,920	14
	15	12,180	14,880	23,180	27,570	39,010	40,880	46, 190	48,310	46,780	40,110	31,360	24,730	15
	16	12,140	14,960	23,600	28,340	39,180	41,010	46,240	48,310	46,550	39,820	31,070	24,550	16
	17	12,150	15,030	23,850	29,920	39,350	. 41,130	46,350	48,310	46,370	39, 530	30,800	24,350	17
	18	12,100	15,120	24,050	31,360	39,430	41, 160	46,380	48,310	46,170	39, 260	30,530	24,140	18
	19	12,080	15,200	24,170	32,920	39,570	41,220	46,420	48,270	45,910	38,970	30,240	23,980	19
	20	12,080	15,280	24, 280	33,920	39,650	41, 250	46, 380	48,130	45,810	38,750	29,970	23,780	20
	21	12,080	15,330	24, 420	34,600	39,720	41,280	46,380	47,860	45,630	38,500	29,720	23,600	21
	2.2	12,090	15,360	24,570	35,060	39,820	41,300	46,370	47,680	45,430	38,290	29,420	23,400	22
	23	12,120	15,400	24,680	35,400	39,890	41,640	46, 330	47,590	45, 200	38,040	29, 230	23, 250	23
	24.	12,160	15,720	24,750	35,720	39,910	42,070	46,330	47,460	44,980	37,820	29,000	23,110	24
	25 ·	12,190	16,280	24,870	35,920	39,960	42,370	46,280	47,410	44,710	37,560	28,820	23,010	25
	26	12,230	16,690	24,980	36,080	40,010	43,180	46,200	47,770	44,710	37, 270	28,610	22,870	26
	27	12,260	17,090	25,080	36,300	40,040	43,720	46,110	47,860	44,550	36,930	28,330	22,790	27
		12,290	17,520	25,190	36, 430	40,080	43,990	46,040	48,000	44,400	36,640	28,070	22,690	28
	29	12,320	18,000	25, 290	36,570	•	44, 220	45,970	48,110	44,260	36,370	27,800	22,620	29
	30	12,350	18,450	25,400	36,740		44,400	45,840	48,170	44,080	36,030	27,580	22,550	30
•	31	12,380	•	25,670	36,880	•	44,580	•	48,170	•	35,780	27,350		31

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 34 DWINNELL RESERVOIR

Day :	April	: May	: June :	July	August	: <u>September</u> :	October	: Day
1		45	29	66	72	56	12	1
2 3		47 31	27 24	67 67	72 73	51 48	7.9 7.9	2
4		10	24	67	73 76	43	8.2	. 4
5		31 10 9.8	24	74	76	43	16	. 5
6		6.8	31	73	76	45	22	6
7 8		9.1 10	46 61	74 78	75 73	48 48	29 29	7
9		15	65	79	69	45	29	8 9 10
10		27	66	79	69	38	29	10
11		27	62	79	72	35	29	11
12 13		28 30	59 59	74	72 73	43	29	12
14		33	60	73 73	73 77	53 53	27 21	13 14
15		36	67	66	' 77	51	13**	15
16		46 65	68	69	77	47		16 17
17		65	72	71	77	47		17
1 8 1 9		63 63	72 72	73 77	78 78	4 7 4 7		1 B 1 9
20	37*	65	73	76	78	5 O		20
21	33	70	79	68	78	53		21
22	36	70	79	64	78	50		22
23 24	34 34	68 61	79 70	62 59	70 66	47 43		23
25	34	61	79 79	61	63	36		21 22 23 24 25
26	35	44	79	69	63	33		
27	38	39	76	74	62	29		26 27
28	38	28	65	72	61	27		2.8
29	38	28	64	72	60	20		29
30	41	33	66	72	58	2 0		3,0
31 Me an	<u>3</u> 6.2	<u>39</u> 39.ō	60.2	<u>72</u> 71.0	5 <u>8</u> 71.2		<u>2</u> 0.6	3 <u>1</u> Mean
Runoff In						43.2		Runoff In
Acre-Feet	789	2400	35 80	4360	4380	2570	613	Acre-Feet

^{*} Beginning of Record ** End of Record

TABLE 35 LITTLE SHASTA RIVER NEAR MONTAGUE

			LITTLE SIN	OIN KITEK	HEAR MORE	NUUL		
Day :	March	April :	May :	June	: July	: August	: September	: Day
1 2	1 8 2 0	58 63	77 80	92 86	27 26	12 12	9.2 9.1	1
3	20	66	151	78	25	12	8.7	· 2 3
4 5	19 17	71 76	140 113	71 6.7	24 23	11 11	8.7 8.4	4 5
	18	76	103	64	23	11	8.9	
6 7	2 0	71	111	62	21	11	9.1	6 7
8 9	20 20	66 75	1 3 4 1 2 5	60 5.9	21 22	11	8.7 8.5	8
10	19	79	121	59	21	10	8.5	8 9 10
11	29	69	119	55	20	10	8.3	11
12	44 39	66 65	129 130	53 50	19 18	9.9 9.4	8.3 8.1	1 2 1 3
14	33	61	120	4.7	18	9.4 9.7	8.0	14
15	30	63	116	45	17		7.9	15
1 6 1 7	29 26	63 62	1 05 99	43 42	17 16	9.6 9.6	7,8 7.7	16 17
18	26	63	97	43	16	9.5	7.6	18
19 20	3 2 4 8	61 66	95 9 0	42 39	16 16	9.4 9.2	7.7 7.6	19 20
	58			37	16	9.4	7.7	
21 22	94	66 67	86 86	36	15	9.5	7.6	2 1 2 2 2 3
23	159 124	68 54	85 83	35 33	1 4 1 4	9.2	7.5 7.5	23
23 24 25	113	49	88	36	14	8.9 8.7	7.5	24 25
26 27	135	58	97	44	13	8.7	8.2	26 27
27 28	85 75	68 71	86 94	35 32	13 13	8.7 8.7	8.6 8.7	2 7 2 8
29	77	74	85	30	1 2	8.5	1 2	2 8 2 9 3 0
3 0 3 1	72 59	78	81 85	28	12 12	9.1 9.9	10	3 O
Mean	50.9	66.4	1 04	50.1	17.8	9.9	8.4	31 Mean
Runoff In Acre-Feet	3130	3 95 3	6369	2981	1097	609	5 00	Runoff In Acre-Feet
7010-1001								A010-1001

SHASTA RIVER WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

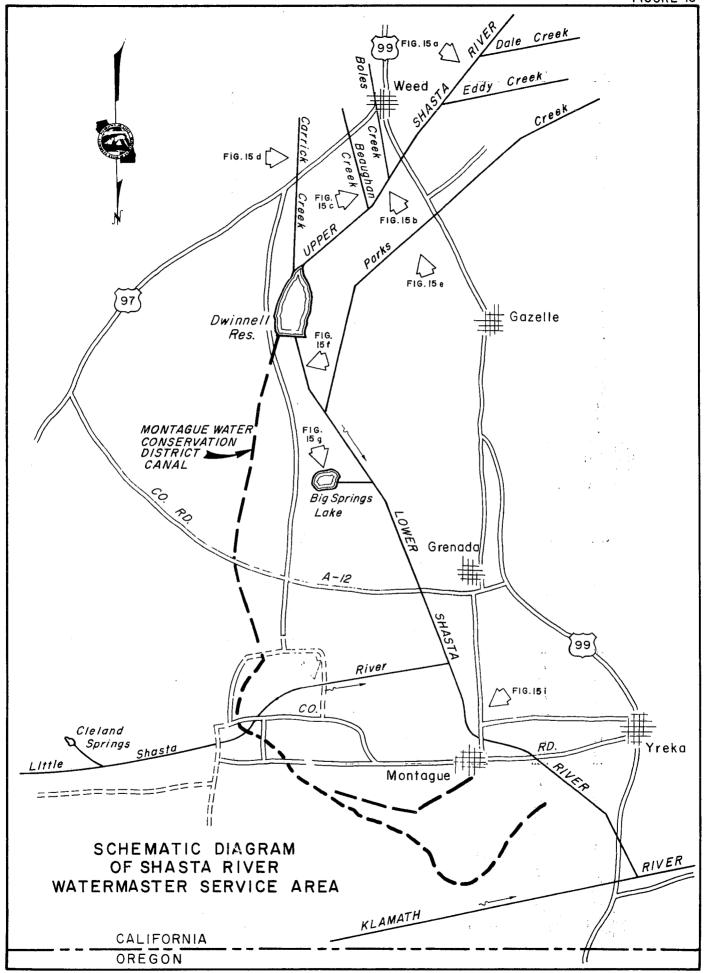
TABLE 36
SHASTA RIVER AT MONTAGUE-GRENADA HIGHWAY BRIDGE

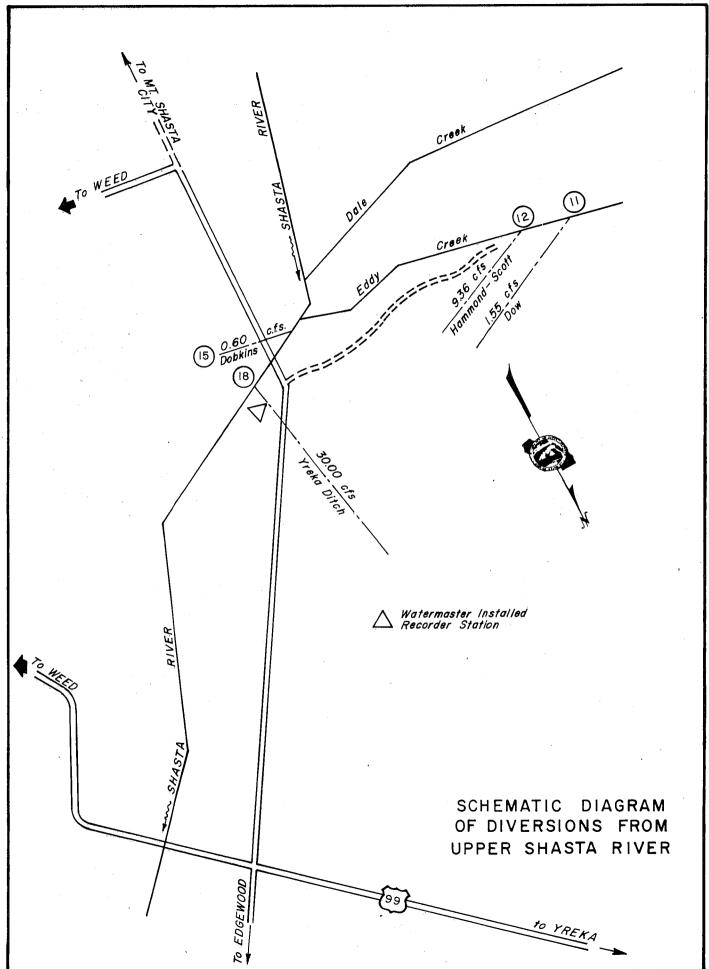
Day : March : Apr	il : May :	June : Jul		September :	Day
1 2 3 3 4 5 5		76 62 59 52 45	20 20 20 20 20 18	21 21 21 24 26	1 2 3 4 5
6 7 8 9		36 34 34 33 30	18 19 20 22 19	35 32 31 30 30	6 7 8 9 10
11 12 13 14 15		29 27 31 27 29	23 26 24 22 20	33 36 37 30 30	11 12 13 14 15
16 17 18 19 20		75* 27 69 25 62 27 65 26 61 42	22 23 21 26 26	29 27 34 48 50	16 17 18 19 20
21 22 23 24 25		68 31 65 36 59 32 53 29 60 30	29 32 23 22 23	48 65 61 66 61	21 22 23 24 25
26 27 28 29 30		66 25 85 23 81 22 86 24 80 22	18 17 19 22 22 22	61 60 56 68 83	26 27 28 29 30 31
Runoff In Acre-Feet		69.0 33. 050 2070	1 350		Meān inoff In re-Feet

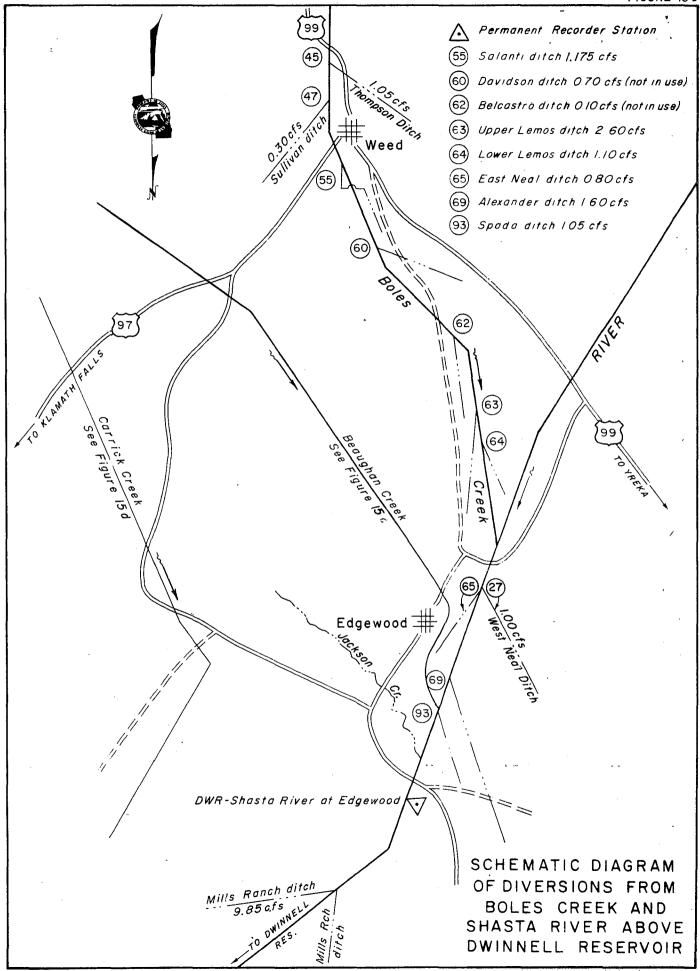
Beginning of Record

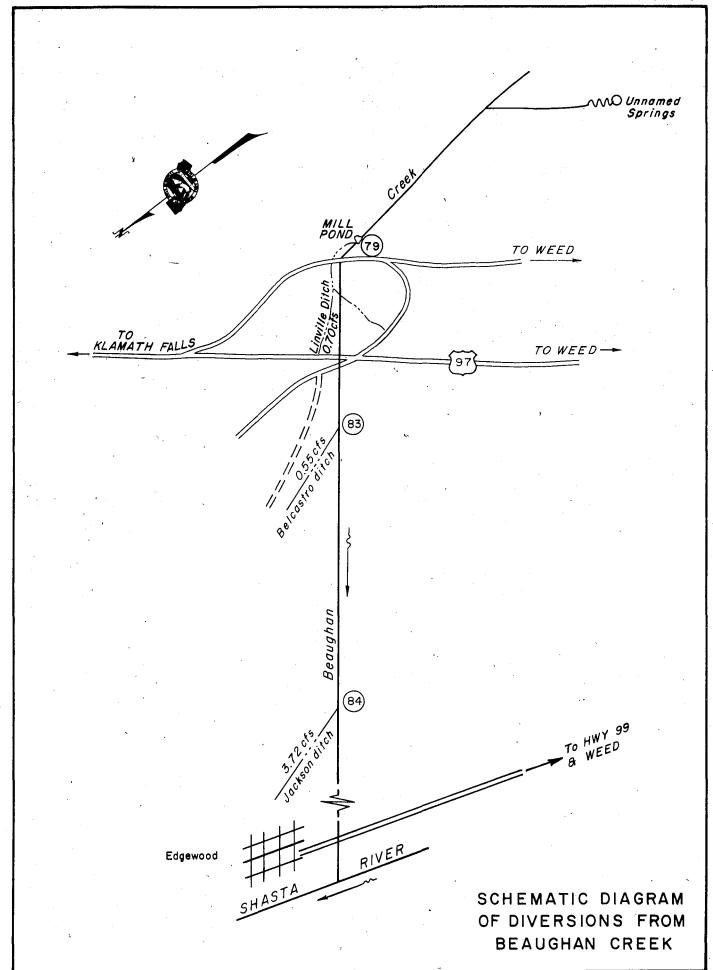
TABLE 37

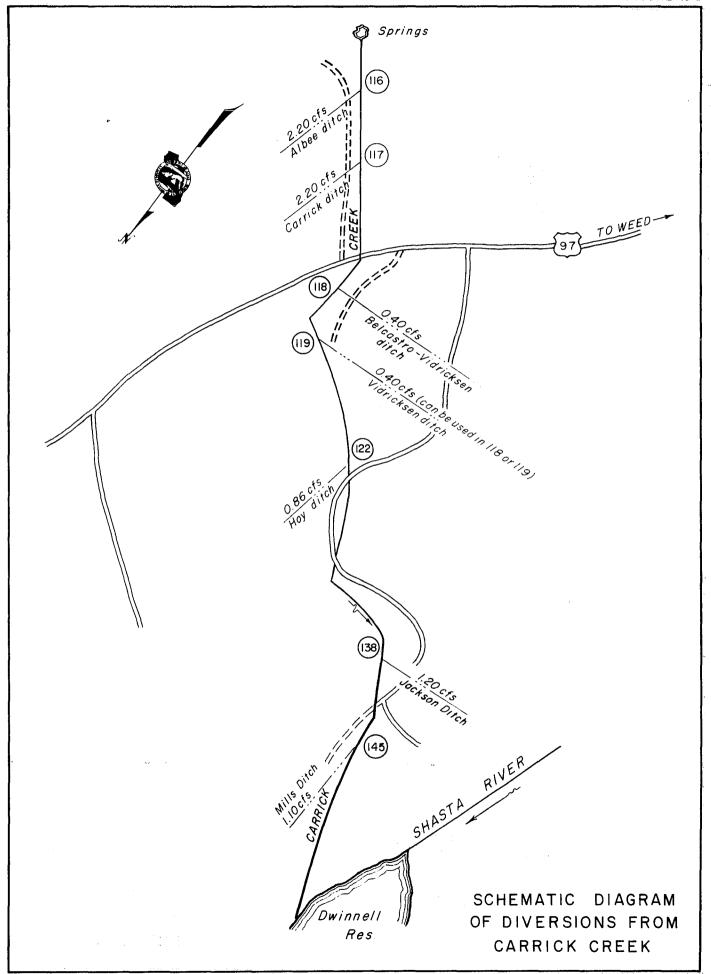
dalah kecamatan			SHASTA	RIVER NEAR	YREKA			
Day ; 1 2 3 4 5	March 267 257 270 267 259	; April ; 470 441 422 403 392	May : 248 261 432 588 591	June ; 443 472 433 366 304	156 146 128 120 103	33 36 28 33 29	September 47 46 48 54 50	Day 1 2 3 4 5
6	259	382	527	261	80	23	67	6
7	258	381	439	247	64	18	71	7
8	256	356	486	231	65	23	65	8
9	255	366	537	197	66	28	62	9
10	261	393	520	194	67	26	63	10
11	276	373	437	1 86	61	22	68	11
12	463	350	376	1 82	53	38	76	12
13	592	323	382	1 69	51	30	84	13
14	462	296	354	1 67	54	32	69	14
15	396	287	329	1 64	42	30	55	15
16	406	277	329	145	51	31	60	16
17	427	275	322	134	44	36	60	17
18	386	258	300	124	45	41	60	18
19	359	226	255	127	53	40	87	19
20	345	240	215	124	67	41	103	20
21	352	286	208	124	71	45	97	21
22	387	284	209	117	66	58	116	22
23	650	293	202	114	65	52	124	23
24	703	274	197	106	56	36	125	24
25	712	260	204	117	51	41	129	25
26 27 28 29 30	1290 870 695 612 564 505	260 234 234 210 216	406 426 384 351 307 308	134 168 168 176 160	51 40 36 37 38 37	40 34 27 35 35 49	121 121 115 130 172	26 27 28 29 30 31
T Mean TT Runoff Tin T Apre-Feet	27890	18770	22080	12010	4090	34 <u>5</u> 21 20	5050	Runoff In Acre-Feet

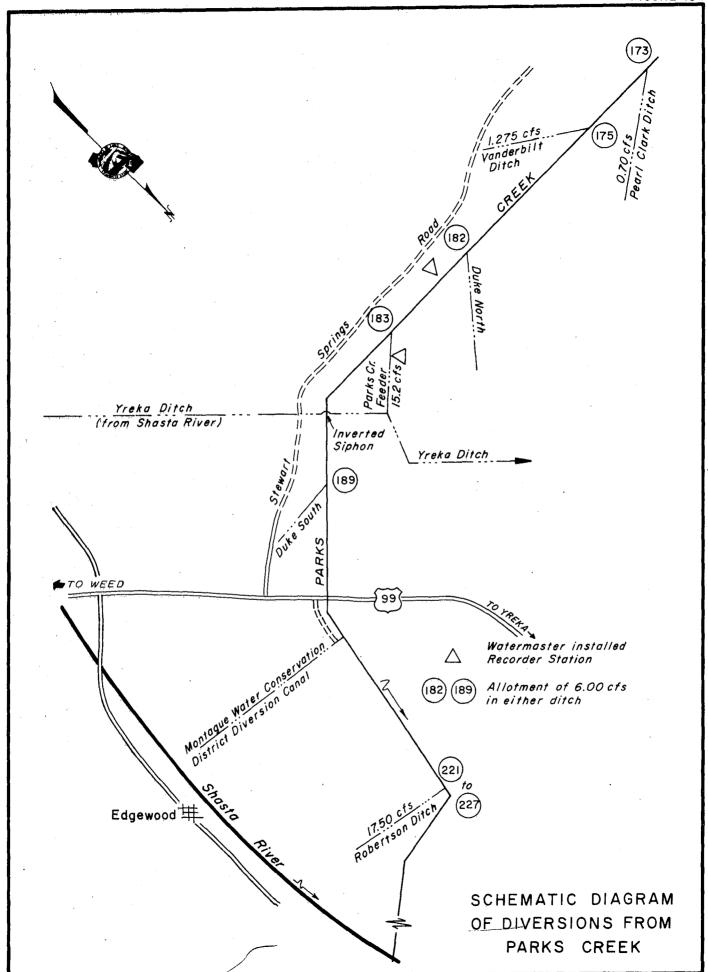


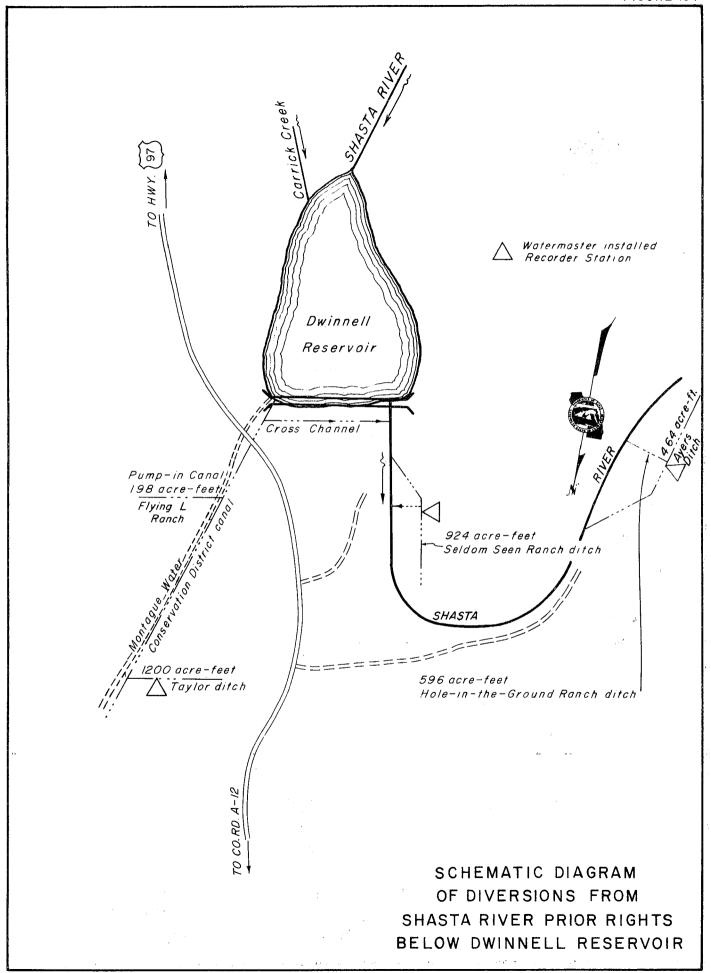


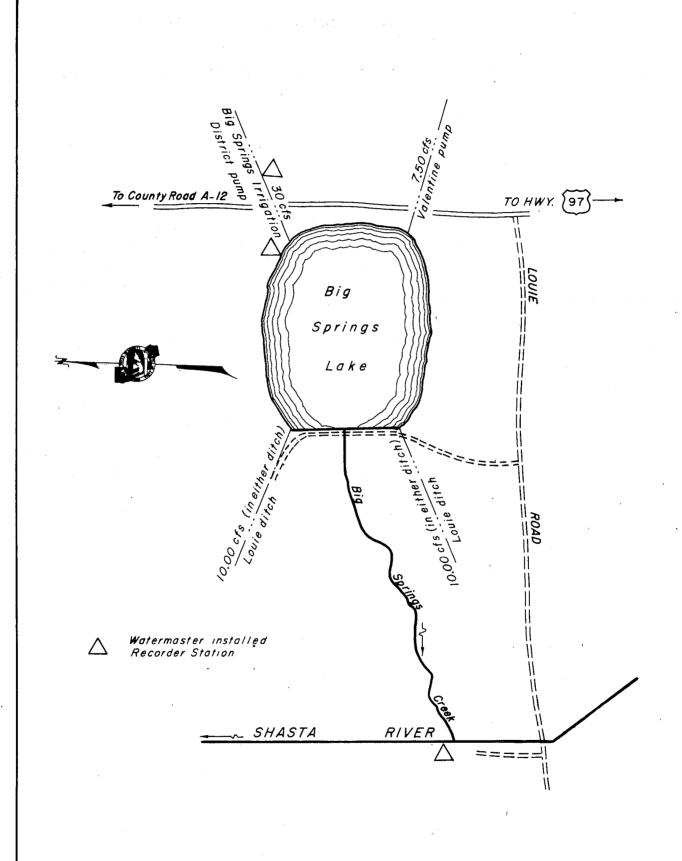




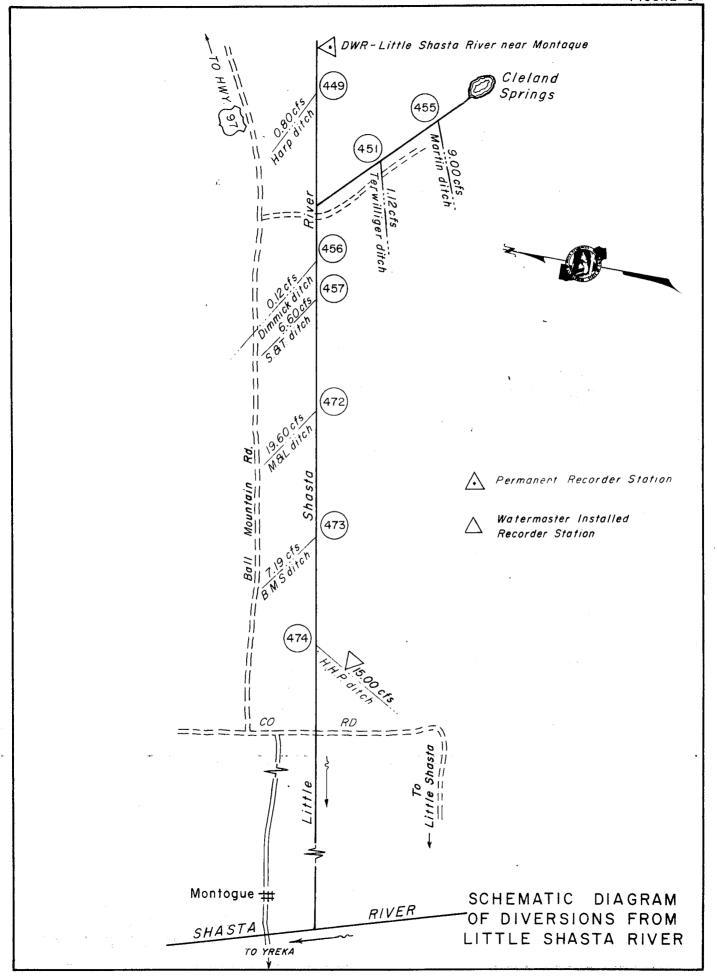


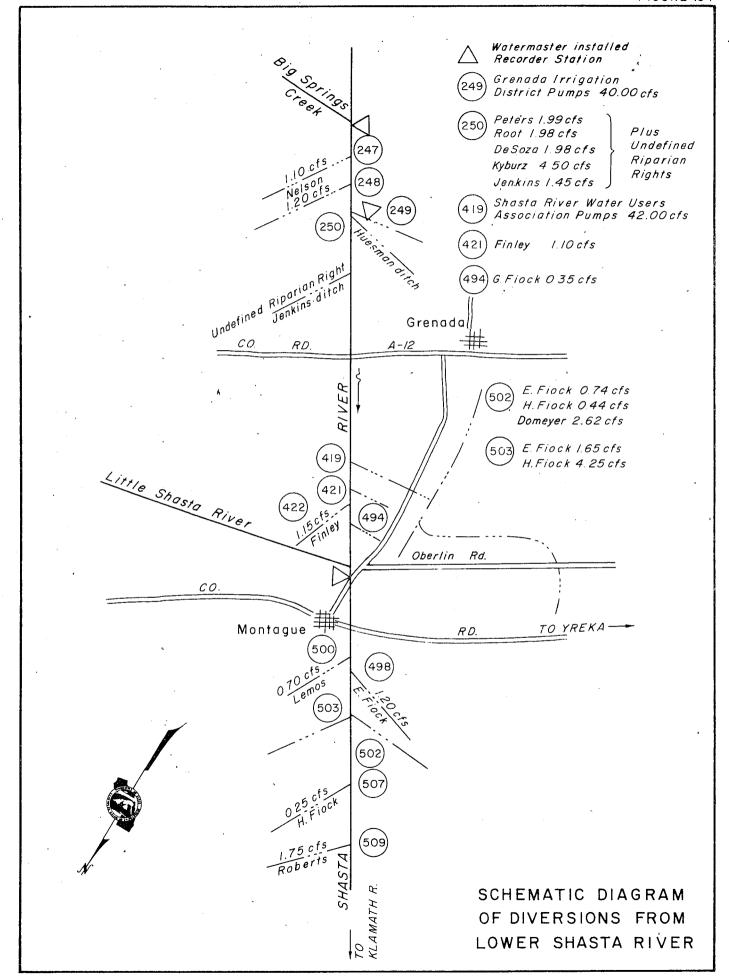






SCHEMATIC DIAGRAM OF DIVERSIONS FROM BIG SPRINGS LAKE





South Fork Pit River Watermaster Service Area

The South Fork Pit River service area is located primarily in Modoc County with a small portion extending into the northern part of Lassen County. There are 36 water right owners in the area with total allotments of 350.97 cubic feet per second.

Water supply for this service area is obtained from the South Fork Pit River and its tributaries which rise on the western slopes of the Warner Mountains. The river flows in a westerly direction, entering South Fork Valley near Likely. It then flows north through the valley to its confluence with the North Fork Pit River at Alturas. The South Fork Pit River is joined from the east by Fitzhugh Creek near the middle of the valley and by Pine Creek just south of Alturas.

The major area of water use is in South Fork Valley between Likely and Alturas. South Fork Valley is about 16 miles long and 3 miles wide with the valley floor lying at an elevation of about 4,500 feet. The valley is bounded on both sides by a rocky plateau that separates it from the surrounding mountains.

A schematic drawing of each major stream system within the South Fork Pit River service area is presented as Figures 16 through 16d, pages 125 through 129.

Water Supply

The water supply for Pine Creek is derived mostly from snowmelt runoff. Therefore, runoff is usually small in the early spring, increases to a peak in May as temperatures rise, and then gradually decreases throughout the remainder of the season. Water users supplement their irrigation supplies from other sources whenever possible.

The water supply for Fitzhugh Creek consists of snowmelt runoff early in

the season and supplemental water diverted from Mill Creek above Jess Valley later in the season. Surplus water from Fitzhugh Creek is diverted into the Payne and French Reservoirs through Payne-French Ditch (Diversion 136) until about June, when the diversion is closed to supply downstream allotments. By July the creek has normally receded until only first priority allotments are available.

Payne Ditch (Diversion 1) is opened to import water from Mill Creek to Fitzhugh Creek when the snow has melted enough to allow access. This imported water is rediverted from North Fork Fitzhugh Creek through the Bowman Ditch to the Bowman Ranch. Return flow from Bowman Ranch to the creek is rediverted through Diversion 136 for stockwatering purposes in the Payne-French Ditch.

The water supply for the South Fork Pit River is derived primarily from snowmelt runoff, supplemented by water released from West Valley Reservoir. A number of streams, which rise at high elevations, collect at the mouth of Jess Valley to form the South Fork Pit River. West Valley Reservoir is fed by Cedar Creek and releases to South Fork below Jess Valley via West Valley Creek.

Most of the water users on the South Fork Pit River, except those in Jess Valley, are in the South Fork Irrigation District. The district stores water in West Valley Reservoir, which has a capacity of 22,240 acre-feet, and releases it to the South Fork Pit River as a supplemental supply when the natural flow becomes insufficient to meet demands. This usually occurs during the middle of June. Reservoir releases, together with the natural flow, are distributed by the watermaster in cooperation with the Board of Directors of the irrigation district. cept for extremely dry years, natural

flow, combined with stored water, is sufficient to supply all demands for water on the South Fork Pit River throughout the irrigation season.

Records of the daily mean discharge of the several stream gaging stations in the area are presented in Tables 38 through 41, pages 123 and 124.

Method of Distribution

Irrigation of the lands along tributary streams is accomplished by flooding through use of small lateral ditches. The water is distributed on a continuous-flow basis to each user through gravity-flow diversion systems. In some cases, rotation is practiced among several users.

Most irrigation in the South Fork Pit River area is by the check and border method. The lands receive water essentially on demand by supplementing natural flow with releases from West Valley Reservoir. However, irrigation between the various ranches must be coordinated to eliminate large peak demands from the reservoir and to use the return flow as much as possible. Actual distribution varies each year as there is no specific irrigation schedule in use.

The South Fork Pit River decree and the Pine Creek Agreement (see Table 1) establish a two-priority class system of distribution for the Fitzhugh Creek and Pine Creek stream systems. Distribution to the South Fork Pit River users (the decree provides for a two-priority class system) is carried out on an equal and correlative basis in accordance with the water requirements for each ranch. This method of operation was made possible by construction of West Valley Reservoir in 1937.

1971 Distribution

Water Resources Engineering Associate Kenneth E. Morgan was watermaster in the South Fork Pit River service area from May 3 to September 30.

The water supply for 1971 was above average throughout the irrigation season. A winter-type storm from May 29 through June 1 produced about 34 inches of new snow in the Warner Mountains. Warm temperatures followed from June 2 to 7, melting the snow and causing flooding of grain lands and meadows.

Pine Creek. A surplus water supply existed in Pine Creek until after haying operations, which were about August 9. From then until late September the flow gradually decreased to approximately 100 percent of first priority allotments (two priorities).

Fitzhugh Creek. Regulation of Fitzhugh Creek began in early July. At that time surplus water was still available. Diversion through the Payne Ditch from Mill Creek was begun on July 17. This imported water was added to the Bowman Ditch allotment in accordance with the decree. At the end of the season the available water supply had decreased to about 60 percent of the first priority allotments (two priorities).

South Fork Pit River: The natural flow of the South Fork Pit River was sufficient to meet all demands until July 29. Releases from West Valley Reservoir began at that time and continued until September 27. The reservoir reached its capacity of 22,240 acre-feet around the last of March. At the end of September, 11.500 acre-feet remained in storage.

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA

· TABLE 38 SOUTH FORK PIT RIVER NEAR LIKELY

Day:	March	: April	: <u>May</u> :	June	: July	: August	: .	September	: Day
1 2	4.9 5.2 5.5	217 215	319 324	1180 1220	3 92 35 6	1 84 1 82	,	147 111	1 2
2 3 4	5.5 5.8	1 9 7 1 9 3	356 454	1100 1010	324 303	1 84 1 80		1 03 1 03	2 3 4 5
5	6.1	1 93	484	876	286	1 71		1 01	5
6	6.3 6.8	207 211	466 458	820 740	269 256	167 165		1 05 1 24	6
8 9	7.5	197	470	684	253	160		. 116	8
10	8.7 11	207 - 197	533 551	652 652	242 228	153 150		1 09 9 7	6 7 8 9 10
11	15	1 93	556	640	223	158		70	11
12 13	50 80	1 91 1 9 7	5 84 6 22	5 95 56 0	217 197	1 76 1 95		72 56	13
14 15	50 25	228 223	652 628	538 506	180 176	191 203	•	51 63	11 12 13 14 15
16	20	234	. 610	484	1 73	107		63	
1,7 1.8	25 16	251 267	556 497	466 442	157 146	59 142		65 69	16 17 18 19
19	28	272	462	423	146	165.		69	19
20	28	2 78	43 4	3 95	1 35	1 86		72	20
21 22	3 2 25	306 303	420 398	377 365	130 125	203 197		73 74	21 22 23
23	113	3 03	389	3 41	113	1 93		73	23
24 25	191 234	332 356	3 83 3 86	324 324	1 03 97	201 211		66 58	24 25
26	394	365	3 86	423	94	211		65	26
27 28	332 283	313 319	4 02 5 1 0	575 616	89 80	2 01 2 01		66 53	`27 28
29	050	313	900	528	113	203		53	29.
30 31	258	319	1030	446	143	1 88		65	30
Mean	25 8 25 8 232 	<u>2</u> 53	1 <u>050</u> 525	610	169 191	176 176		80.4	31 Mean Runoff In
Runoff In Acre-Feet	5470	15070	32270	363 00	11730	1 084 0		4780	- Runoff In
ACIE-FEEL									Acre-Feet

TABLE 39 WEST VALLEY CREEK BELOW WEST VALLEY RESERVOIR

			11 11 11		, , ,	· - n	DLLOW	11 11 1	***		LOLINIOIN			
Day : 1 2 3 4 5	March	: 3	April	:	Мау	:	June	:	July	:	August 115 115 115 115 115	:	118 90 79 79 79	Day 1 2 3 4 5
6 7 8 9 1 0											115 115 115 115 122		79 79 79 78 60	6 7 8 9 10
11 12 13 14 15									,		131 147 160 159 159		37 37 27 23 31	11 12 13 14 15
16 17 18 19 20				,							21 1 09 1 3 7 1 44 1 64		31 31 32 32 32 32	16 17 18 19 20
22 23 24 25											1 6 4 1 6 4 1 7 0 1 7 7		32 32 32 27 14	21 22 23 24 25
26 27 28 29 30 						. – – -			49* 98 115 87.3		1 74 1 72 1 70 1 54 -1 41		14 7.0**	26 27 28 29 30
Runoff In Acre-Feet	,								520		8344		2561	Runoff In Acre-Feet

^{*} Beginning of Releases ** End of Releases

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 40 FITZHUGH CREEK BELOW DIVERSION NO. 137

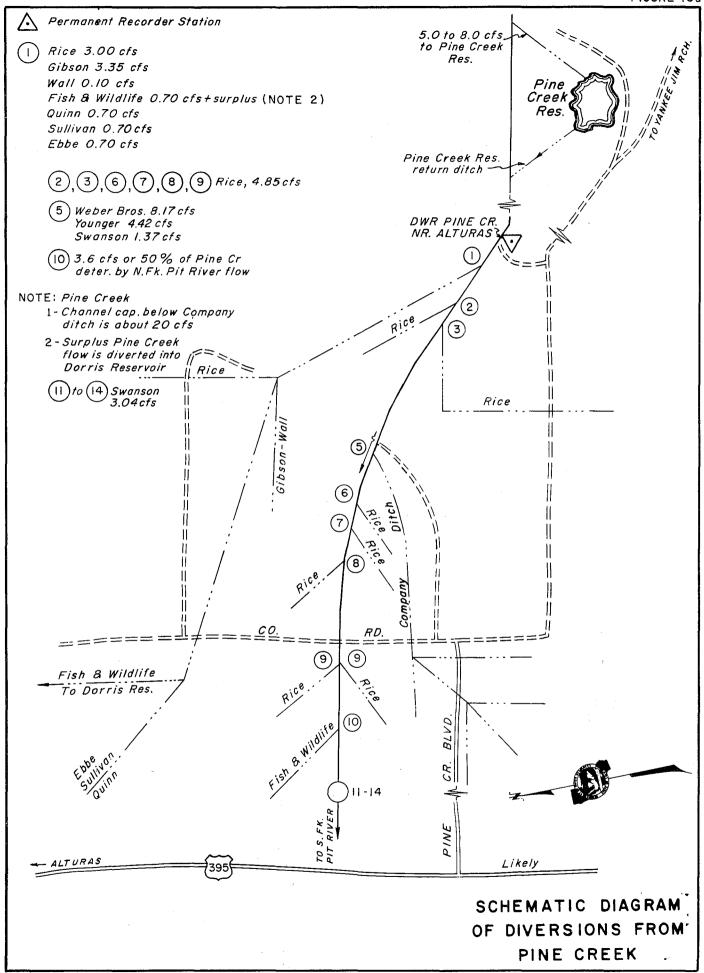
Day :	March	:	April	:	May	:	June	:	July	:	August	:	September	:	Day
1 2									26 24 23 21		9.2 7.9 7.2		5.8 5.6 5.6 5.8		1
2 3 4 5									23		7.2		5.6		2 3 4 5
5									19		7.0 6.6		5.4		5
6 7 8 9 10									16 15 15		6.6 6.4		5.4 5.4		6
8 9									15 14		6.4 6.2 6.2 6.2		5.8 5.8 5.6		6 7 8 9 1 0
10									13						10
11 12									1 2 11		6.2 6.2 6.2 6.0		5.8 5.5 5.4 5.2 5.0		11 12
13 14									11 10		6.2		5.4		13
15									10		6.0		5.0		14 15
16 17									10 9.5		6.0 5.8		4.8		16 17
18									10		5.6 5.4 5.4		4.6 4.8		16 17 18 19 20
19 20									1.4 1.2		5.4		4.8 4.8		20
21 22									1 1 1 0		5.0 5.4		4.8		21
23							29*		9.5		5.6		4.4 3.2 3.0**		21 22 23 24 25
24 25							26 23		8.6 8.1		5.4 5.4		J.U*↑		24 25
26 27							56 47		7.9 7.2		5.4				26
27 28							71		7.2		5.6				28
29 30							36 29		7.4 7.4		5.4 5.6 5.6 5.7 5.8 6.0				26 27 28 29 30
31 Mean						- -	39.6		$\frac{7.2}{12.4}$		6 <u>.0</u> 6 <u>:</u> 1		5 .1**		Mean
Runoff In Acre-Feet							629		768		3 75		242	Ř üi A c	noff-In re-Feet

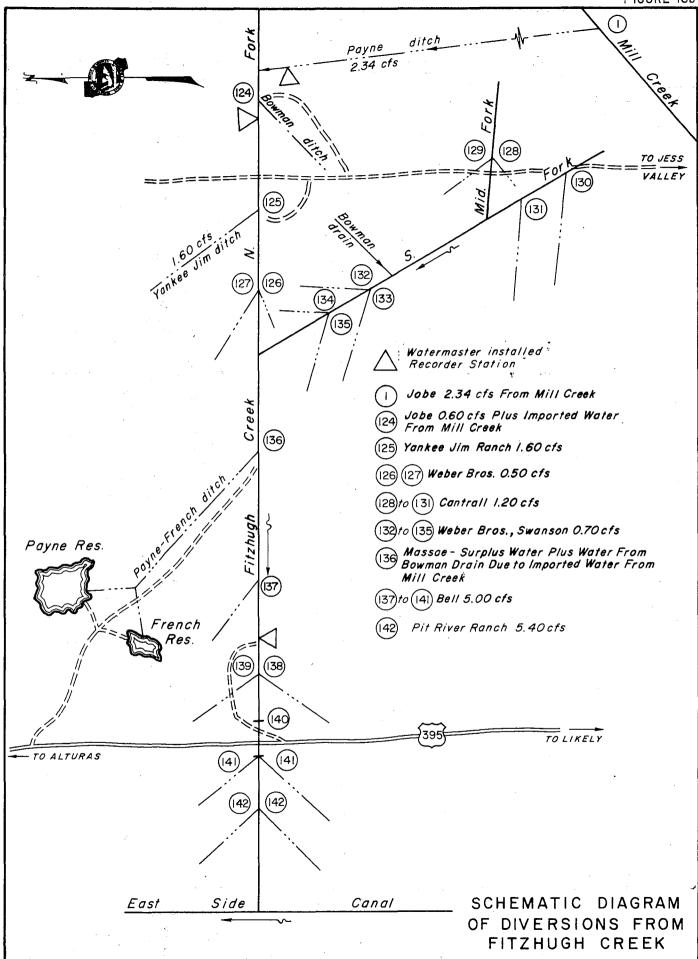
^{*} Beginning of Record ** End of Record

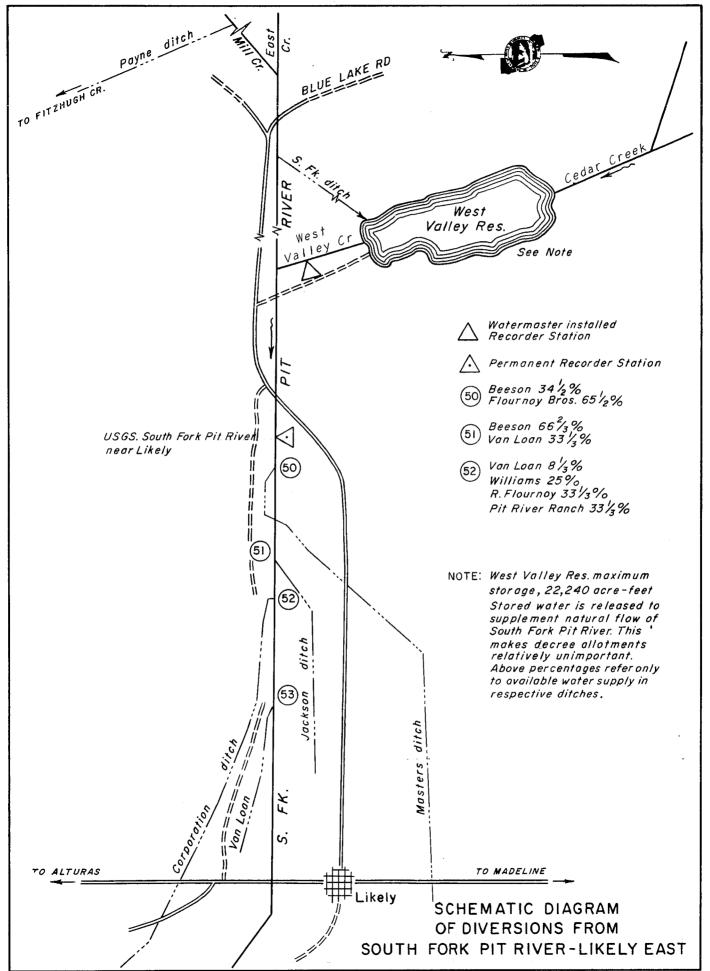
TABLE 41 PINE CREEK NEAR ALTURAS

			LIME	WELK MEY	AN ALIUNAS			
Day : 1 2 3 4 5	March 13 13 13 13 13	: April : 16 16 17 17	May : 32 33 44 97 55	205 246 118 91 87	77 70 65 63 60	34 31 30 29 28	: September 23 23 23 22 22	Day 1 2 3 4 5
6 7 8 9 1 0	14 14 13 13	1 8 1 8 1 8 1 8 1 9	47 46 56 63 58	85 84 86 90 1 06	57 55 53 51 49	28 27 27 27 26	24 24 22 22 22	6 7 8 9 10
11 12 13 14 15	13 25 32 26 21	1 9 1 8 1 8 2 0 2 1	61 66 70 70 76	107 108 108 106 107	48 47 46 44 43	27 26 26 25 25	2 2 2 2 2 2 2 2 2 2	11 12 13 14 15
16 17 18 19 20	23 23 19 29 45	21 23 30 32 27	75 70 71 70 66	1 08 1 08 1 08 1 03 97	42 41 47 46 45	25 25 25 24 23	2 2 2 1 2 2 2 2 2 2	16 17 18 19 20
21 22 23 24 25	31 22 36 30 22	41 35 27 37 41	60 56 60 62 65	93 93 93 89 92	41 39 38 38 36	23 23 23 23 23	22 22 22 22 22 22	21 22 23 24 25
26 27 28 29 30	53 30 23 18 18	31 26 27 28 31	65 72 96 167 161	122 109 128 104 87	36 35 34 33 32 34	23 23 23 22 22 22	25 24 23 24 24	26 27 28 29 30 31
Mean Runoff In Acre—Feet	1365	1 44 0	4469	64 8 2	2 86 6	1563	1341	Mean Runoff In Acre-Feet

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Surprise Valley Watermaster Service Area

The Surprise Valley service area is located in the extreme eastern part of Modoc County. There are 172 water right owners in the service area with total allotments of 313.75 cubic feet per second. The source of water supply is comprised of 10 individual stream systems rising on the eastern slope of the Warner Mountains. These streams are fed by snowmelt runoff and traverse a fast, precipitous course down the eastern slope of the Warner Mountains to the valley floor where numerous, scattered diversion ditches convey water to the irrigated lands. place of use is situated in a long. narrow area extending in a north-south direction between the foot of the Warner Mountains and the Alkali Lakes which lie in the center of Surprise Valley.

Surprise Valley extends from near the Oregon border on the north to Lassen County on the south, a distance of approximately 50 miles. The valley varies in width from about 8 to 10 miles. It is bordered on the north, south, and west by the rugged Warner Range and on the east by the typical mountainous desert terrain of Nevada. The valley floor is at an elevation of approximately 4,700 feet.

A schematic drawing of each major stream system with the Surprise Valley service area is presented as Figures 17 through 17j, pages 141 through 152.

Water Supply

The water supply is derived almost entirely from snowmelt runoff, with only minor spring-fed flows occurring in the latter part of the season. There are no known economically justified storage sites on the service area creeks. Because of the lack of regulatory storage, the available water supply at any specific diversion

point may vary considerably within a few hours. An extreme differential in day and night temperatures causes extensive variation in snowmelt runoff quantities. This problem is further aggravated by the relatively short and steep drainage area. In addition, occasional summer thundershowers may cause a creek to discharge a flow of mammoth portions for several hours. These flashes are apt to cause considerable damage in washouts and debris deposition and are of such short duration that no beneficial use can be made of the water.

Records of the daily mean discharge at several stream gaging stations within the service area are presented in Tables 42 through 52, pages 134 through 139.

Method of Distribution

The continuous flow method of distribution is employed on most creeks; however, in a few instances the available water supply is rotated among the users in accordance with either decree schedules or by mutual agreements.

Alfalfa and meadow hay, the major crops grown in the valley, are irrigated in most instances by wild flooding, although some lands are dependent upon subsurface irrigation. Also, recent development of deep wells has placed many acres under sprinkler irrigation. Only surface water supplies are under state watermaster service.

To facilitate distribution of irrigation waters, construction of permanent diversion dams, headgates, and measuring devices has been stressed during recent years. Although these structures do not solve the problems of discharge variation and debris deposition, they do provide significant assistance in solving water measurement and distribution problems.

The several decrees (see Table 1) which apply to the Surprise Valley service area establish the following number of priority classes for the various stream systems: Bidwell Creek - four until July 10, five thereafter; Mill Creek four: Soldier Creek - rotation March 19 to June 19 (upper users eight, lower users seven), twelve priorities in effect during the remainder of the year; Pine Creek - a rotation schedule based on accumulative flow in acre-feet; Cedar Creek - four; Deep Creek - five; Owl Creek - twenty-one; Rader Creek six; Eagle Creek - four; and Emerson Creek - four.

1971 Distribution

The watermaster in the Surprise Valley service area from March 19 to September 30 was Alden B. Moore, Water Resources Technician II.

The very late spring brought about an unusual season. The peak runoffs occurred in June and July instead of April and May. Most crops had an abovenormal yield, but grain did not recover from the cold spring.

Bidwell Creek. Total stream runoff available to users during the period April 1 through September 30 was 25,030 acre-feet or approximately 217 percent of normal.

All priorities were filled for the first schedule April 1 through June 9 (four priorities). All priorities (five) on the next schedule were filled until the middle of August. The flow decreased to first priority allotments about September 15.

Mill Creek. Total stream runoff available to users during the period April 1 through September 30 was 6,469 acrefeet, or approximately 125 percent of normal. From April through June 11 all third priority allotments were filled. Some fourth priority rights were filled for May and June. All second priority rights were supplied through the first week of August. All first and some

second priority rights were met through September 30.

Soldier Creek. Total stream runoff available to users from March 19 through September 30 was 4,620 acre-feet, or approximately 125 percent of normal. Due to the wet spring and the considerable amount of alfalfa planted on low ground, lower users did not take rotation this year. Upper users had all of flow through June 18. Permit rights were filled through July.

Pine Creek. Total stream runoff available to users during the period of March 20 through September 30 was 2,828 acrefeet, or approximately 214 percent of normal. A rotation schedule (on an accumulated-flow basis) was started on March 20 and continued through April 15. On April 16, due to high flows and wet fields, the decision was made to split the streamflow 50-50 between the north and south ditch. This schedule continued until August 5, when Bordwell turned all water into Cressler Ditch. Flow stopped on August 27 and the creek remained dry through September 30.

Cedar Creek. Total runoff available to users from April 1 through September 30 was 5,987 acre-feet, or approximately 227 percent of normal. Lower users were unable to get water until mid-May because of a washout at the diversion structure. Usable amounts were then received until mid-June. Diversions No. 1 and 3 divided the flow from then to July 10 when only first priority rights were supplied.

Deep Creek. Total stream runoff available to users from April 1 through September 30 was 5,223 acre-feet, or approximately 143 percent of normal. North Deep Creek filled the one and only priority through June 19 and supplied partial rights the rest of the season. South Deep Creek supplied all five priorities from May 3 through June 7. By June 20 it was down to first priority only. Except following a few rain storms, the creek receded for the rest of the season.

Owl Creek. Total stream runoff available to users from April 1 through September 30 was about 15,200 acre-feet, or approximately 246 percent of normal. Due to flood waters from a storm on June 26 which took out the recorder, the July flow is an estimate only. All 21 priorities were filled from May 9 until about the middle of July. The flow decreased steadily thereafter, supplying only four priorities by September 30.

Radar Creek. Total stream runoff available to users from April 1 through September 30 was approximately 6,100 acre-feet, or approximately 169 percent of normal. Records for June through September were lost due to the June flood. Water distribution was interrupted from June 26 to August 3 because of washed out structures. The Cockrell Ranch did not need its 1/7 flow until late in July and were cut off on August 19. First and second priorities lasted all season.

Eagle Creek. Total stream runoff available to users from April 1 through September 30 was estimated at 11,600 acrefeet, or approximately 225 percent of normal. Control structures were washed out June 26 and remained out for the rest of the season. All priorities were filled from May 10 until late in July. Flow declined steadily with all first priorities being filled until the end of the season.

Emerson Creek. Total stream runoff available to users from April 1 through September 30 was 6,297 acre-feet or approximately 179 percent of normal. All four priorities were filled from May 8 until June 30. The flow declined from July 1 until end of season, with partial second priorities being filled at this time.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 42
BIDWELL CREEK NEAR FORT BIDWELL

Day :	March :	April :	: May :	June	:	July	: August	:	September	:	Day
1	15	45	74	136		70	14		7.5		1
2 3	12	43	82	122		66	13	• ,	7.4		2 3 4 5
	18	44	108	116		61	13		7.4		3
4 5	14 13	46 51	146 153	116 114		56 52	12 12		7.5 7.3		4
6	14	57 57	139	118		49	12		7.6		6
7	13 13	5 <i>1</i> 53	1 41 1 64	128 141		46 44	11 11		7.8 7.2		/
8 9	13	55	194	142		41	11		6.0		å
10	13	57	199	164		37	10		6.9 6.7		6 7 8 9 10
11	13	52	202	153		34	10		6.7		11
12	15	49	211	139		30	9.8		6.5		12
13	14	49	213	135		28	9.6		6.4		13
14	13	54	201	132		26 25	9.4		6.4		13 14 15
15	12	,6 0	193	132		25	9.1		6.4		
16	12	64	176	133		24	8.9		6.3		16
17	13	64	163	130		23	8.9		6.4		17
18	15	57	157	1 26		23 22 22	8.8		6.5		17 18 19
19 20	14 13	55 54	152 145	1 2 3 1 2 0		21	8.6 8.4		6.4 6.4		20
									=		
21	17	51	140	119		20	8.3		6.5		21
22	29	46	1 35 1 38	117 115		19 18	8.4 8.3		6.4 6.3		22
23	90 84	43 40	154	111		17	8.0		6.0		24
24 25	67	38	168	117		16	7.8		6.2		21 22 23 24 25
26	75	41	173	130		16	7.6		8.2		
20 27	63	41 47	175	111		15	7.6		8.2		26 27 28 29
28	53	54	175	95		15	7.4		8.0		28
29	52	63	189	85		14	7.4		9.6		29
30	56	70	183	75		14	7.3		8.9		30 31
31	50		152			14.	7.7				
Mean	29.3	52.0	161	123		<u>3</u> 8	9.6		7.1	6:	Mean
Runoff In Acre-Feet	1 801	3092	9907	7329	1	894	588		420	Ac	inoff In cre-Feet

TABLE 43
MILL CREEK ABOVE ALL DIVERSIONS

			WILL OW					
Day : 1 2 3 4 5	March :	26* 26 26 26 24 23	: May 27 29 33 48 49	35 33 35 35 35 35	20 20 20 20 21 19	: August 4.5 3.9 3.7 3.5 3.5	: September 2.3 2.3 2.3 2.3 2.3 2.3 2.2	Day 1 2 3 4 5
6 7 8 9 10		24 25 23 23 26	43 38 42 45 46	33 33 34 34 35	18 17 15 14	3.5 3.5 3.4 3.4	2.2 2.2 2.3 2.2 2.2	6 7 8 9 10
11 12 13 14 15		26 22 21 23 25	45 44 44 41 39	34 33 32 31 31	13 12 12 11 11	3.4 3.4 3.3 3.3	2.2 2.2 2.1 2.1 2.1	11 12 13 14 15
16 17 18 19 20		26 28 28 26 24	38 34 32 32 31	30 29 29 28 27	11 10 11 11 5.3	3.3 3.3 3.2 3.1 3.0	2.1 2.1 2.2 2.1 2.1	16 17 18 19 20
21 22 23 24 25		23 21 21 20 19	29 28 28 29 31	27 26 26 25 26	5.1 5.9 5.3 4.9 4.7	2.9 2.8 2.7 2.6 2.6	2.1 2.1 2.0 2.0 2.0	21 22 23 24 25
26 27 28 29 30 31		19 20 21 24 26	31 31 33 36 38 37	33 32 30 27 26	4.5 4.5 4.3 4.1 4.1 4.5	2.6 2.5 2.5 2.4 2.4 2.4	2.1 2.1 2.1 2.1 2.1	26 27 28 29 30 31
Runoff In Acre—Feet		1410	2240	1830	668	1 93	128	Runoff In Acre-Feet

^{*} Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 44 SOLDIER CREEK ABOVE ALL DIVERSIONS

Day : 1 2 3 4 5	March	: April : 12 13 12 12 12 12	May : 21 26 52 70 50	20 23 31 26 22	10 9.9 9.2 8.6 7.9	4.4 4.2 4.1 3.9 3.8	: September 2.6 2.6 2.5 2.4 2.4	: Day 1 2 3 4 5
6 7 8 9 10		12 12 12 13 13	30 32 43 48 43	22 22 22 20 21	7.4 8.3 7.1 6.9 6.9	3.8 3.8 3.6 3.6	2.5 2.5 2.4 2.3 2.3	6 7 8 9 10
11 12 13 14 15		11 11 11 14 15	45 50 45 31 30	19 18 17 16	6.5 6.3 6.2 6.0 5.6	3.5 3.5 3.2 2.9	2.3 2.3 2.3 2.2 2.2	11 12 13 14 15
16 17 18 19 20	3:0* 3.5	14 13 12 12 12	23 19 19 19 17	15 15 14 13	5.5 5.5 5.3 5.3	2.8 2.7 2.5 2.4 2.0	2.2 2.2 2.3 2.3 2.3	16 17 18 19 20
21 22 23 24 25	5.0 11 13 14 15	11 11 11 10 9.8	13 15 17 20 20	13 12 12 11 14	5.2 5.0 4.8 4.7 4.7	2.3 2.0 2.0 2.2 2.1	2.5 2.6 2.5 2.5 2.4	21 22 23 24 25
26 27 28 29 30 31	13 12 11 11 11 12	10 12 15 20 20	19 21 22 24 22 19	31 17 15 14 13	4.5 4.4 4.4 4.1 4.5	2.0 2.7 2.7 2.8 2.7 2.7	2.4 2.4 2.3 2.3 2.4	26 27 28 29 30 31
Mean Runoff In Acre-Feet		750	1840	1060	377	186	141	Mean Runoff In Acre-Feet

^{*} Beginning of Record

TABLE 45 PINE CREEK AT DIVISION OF NORTH AND SOUTH CHANNELS

Day:	March :	April	: May	: June	: July	: August :	September	: Day
1 2 3 4 5		12 12 13 15	22 24 34 40 29	22 30 35 23 19	3.4 2.5 2.2 1.8 1.5	0.5 0.5 0.5 0.5 0.5		1 2 3 4 5
6 7 8 9 10		16 16 14 17	22 22 25 25 21	13 11 10 8.8 8.4	1.5 3.4 5.6 3.4 2.7	0.5 0.5 0.5 0.5 0.5	,	6 7 8 9 10
11 12 13 14 15		13 12 12 13 16	20 19 18 14 13	7.2 6.7 6.1 5.6 5.0	2.6 2.5 1.8 1.0	0.4 0.4 0.4 0.4 0.4		11 12 13 14 15
16 17 18 19 20	4.4*	20 18 15 14 13	10 8.8 8.1 7.8 7.0	4.8 4.5 4.5 4.3 4.1	1.0 1.0 0.9 0.9	0.4 0.3 0.3 0.3		16 17 18 19 20
21 22 23 24 25	4.2 7.0 10 15 14	11 11 10 9.1 9.4	6.4 6.1 6.1 6.1 5.8	3.8 3.2 2.0 1.8 2.5	0.8 0.8 0.8 0.7 0.7	0.2 0.2 0.2 0.2 0.1		21 22 23 24 25
26 27 28 29 30 31	14 14 14 15 15	1 4 1 7 2 1 2 5 2 4	6.7 7.2 8.8 18 20	13 7.0 6.4 4.5 4.1	0.7 0.6 0.6 0.5 0.5	0.1 0.1 0.0**		26 27 28 29 30 31
Meān Lūnoff Tn		14.8	19 16.1	9.4	<u>1.6</u>	0.4		Mean
lunott In Icre-Feet	279	884	991	558	97	1 9		Runott In Acre-Feet

^{*} Beginning of Record ** End of Flow

SURPRISE VALLEY WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 46
CEDAR CREEK NEAR CEDARVILLE

<u>Day</u> :	March 5.2	: <u>April</u> : 26	32	June 32	: <u>July</u> 8.0	August 2.8	: September 0.9	: <u>Day</u>
2 3 4	4.9 4.0 5.0	26 25 25	33 42 51	34 37 33	7.4 7.0 6.4	2.4 2.3 2.1	0.9 0.8 0.8	2 3 4 5
4 5	4.8	27	46	29	6.0	2.0	0.7	
6 7	4.6 4.6	28 26	41 40	27 25	5.8 5.9	2.0 1.9	0.7 1.0	6 7 8 9 10
8 9	4.7	26	41	24 23	6.8	1.8	0.8	8
9 10	4.7 4.7	27 27	41 38	23 23	5.8 5.4	1.7 1.7	0.6 0.6	10
11 12	5.0 5.7	25 24	37 37	20 19	4.7 4.3	1.6 1.6	0.6 0.6	11
13	6.0	24	36	17	4.2	1.5	0.5	13
14 15	5.9 6.2	27 28	32 30	16 15	4.1 3.9	1.4 1.3	0.5 0.5 0.5	12 13 14 15
16	6.4	27	28	14	3.9	1.3	0.5 0.5	16 17
17 18	6.4 6.4	27 26	26 24	15 14	3.8 3.8	1.2 1.2	0.5	18
1 9 20	6.8 8.5	27 26	24 24	13 12	3.9 4.1	1.1 1.0	0.5 0.5	18 19 20
20	11	25	22	11	3.6	1.1	0.5	21
22	18	24	21	10	3.4	1.1	0.5	22
23 24	60 47	24 22	21 21	9.5 8.8	3.3 3.3	1.0 0.9	0.5 0.5 0.5	22 23 24 25
25	41	22	21	10	3.1	0.9	0.5	25
26	51	24	22	21	2.9	0.8	1.2	26 27 28 29 30
27 28	41 37	25 27	21 21	14 13	2.8 2.6	0.8 0.8	1.2 1.0	21 28
29 30	36 35	31 32	27 28	11 9.3	2.5 2.5	0.8 0.7	2.5 2.9	29 30
31	29 16.7				2.9_	0.7 0.8 1.4		31 Mean Runoff In
Runoff In		26.0		<u>18.7</u>	4 <u>.</u> 5		0.8	Mean Runoff-ra
Acre-Feet	1024	1547	1898	1110	274	86	48	Acre-Feet

TABLE 47
NORTH DEEP CREEK ABOVE ALL DIVERSIONS

1 2 3 4 5	March :	April : 1.2* 3.6 4.8 4.8 7.3 8.6 7.3	May : 7.3 8.5 15 16 16 14 11	June 21 18 18 16 15	5.0 4.7 4.5 4.4 4.3 4.1 4.2	2.8 2.8 2.8 2.8 2.4 2.4	: September 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.8 0.7 0.7	: <u>Day</u> 1 2 3 4 5 6 7
8 9 10		6.1 6.1 7.3	16 17 18	12 14 16	4.1 3.9 3.8	2.2 2.2 2.2	0.6 0.6 0.6	6 7 8 9 10
11 12 13 14 15		6.1 3.6 2.4 4.8 6.1	18 20 21 20 17	14 12 11 9.8 8.5	3.7 3.6 3.5 3.4 3.4	2.2 2.0 2.0 2.0 2.0	0.7 0.7 0.7 0.7 0.7	11 12 13 14 15
16 17 18 19 20		6.1 6.1 7.3 11	15 12 8.5 8.5 6.0	7.0 7.0 6.7 6.3 5.7	3.3 3.2 3.1 3.0	2.0 2.0 1.8 1.8	0.8 0.8 0.8 0.8	16 17 18 19 20
21 22 23 24 25		9.9 9.9 7.3 6.1 3.6	2.3 3.6 3.6 8.5 12	5.4 5.1 4.4 4.4	2.9 2.9 2.9 2.9 3.0	1.6 1.6 1.6 1.4 1.4	0.8 0.8 0.9 0.9	21 22 23 24 25
26 27 28 29 30 31		1.2 2.4 4.8 9.9	12 14 15 18 21 23	9.8 6.0 6.0 5.4 5.1	3.0 2.8 2.8 2.9 2.9	1.3 1.0 0.8 0.7 0.6 0.6	0.9 0.9 0.9 0.9	26 27 28 29 30 31
Mean lunoff In lcre—Feet		375	829	<u> </u>	21 4	113	46	31 Mean Runoff In Acre-Feet

^{*} Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 48 SOUTH DEEP CREEK ABOVE ALL DIVERSIONS

1 6.0* 16 30 4.9 2.0 0.8 1 2 7.9 17 29 4.8 1.7 0.8 2 3 7.2 24 28 4.5 1.7 0.8 3 4 6.0 31 28 4.3 1.7 0.8 4 5 6.5 32 25 4.0 1.5 0.8 5 6 6.5 28 22 4.0 1.6 0.9 6 7 5.5 26 21 4.0 1.5 0.8 8 9 6.5 28 20 3.9 1.5 0.8 8 9 6.5 28 20 3.7 1.4 0.7 9 10 7.2 26 19 3.4 1.2 0.7 10 11 4.5 27 18 3.2 1.2 0.6 11 12 6.5 27 18 3.2 1.2 0.6 12 13 14	Day : March	: April :	May:	June :	July:	August :	September	: Day
4 6.0 31 28 4.3 1.7 0.8 4 5 6.5 32 25 4.0 1.5 0.8 5 6 6.5 28 22 4.0 1.6 0.9 6 7 5.5 26 21 4.0 1.5 1.1 7 8 5.5 27 20 3.9 1.5 0.8 8 9 6.5 28 20 3.7 1.4 0.7 9 10 7.2 26 19 3.4 1.2 0.6 11 12 6.5 27 19 3.3 1.2 0.6 11 12 6.5 27 18 3.2 1.2 0.6 12 13 6.0 28 17 3.1 1.2 0.6 12 13 14 9.4 32 17 3.1 1.2 0.6 14 15 9.4 26 16 3.0 1.2 0.6 15 16 <td>1</td> <td>6.0*</td> <td>16</td> <td>30</td> <td>4.9</td> <td>2.0</td> <td>0.8</td> <td><u>-1</u></td>	1	6.0*	16	30	4.9	2.0	0.8	<u>-1</u>
4 6.0 31 28 4.3 1.7 0.8 4 5 6.5 32 25 4.0 1.5 0.8 5 6 6.5 28 22 4.0 1.6 0.9 6 7 5.5 26 21 4.0 1.5 1.1 7 8 5.5 27 20 3.9 1.5 0.8 8 9 6.5 28 20 3.7 1.4 0.7 9 10 7.2 26 19 3.4 1.2 0.6 11 12 6.5 27 19 3.3 1.2 0.6 11 12 6.5 27 18 3.2 1.2 0.6 12 13 6.0 28 17 3.1 1.2 0.6 12 13 14 9.4 32 17 3.1 1.2 0.6 14 15 9.4 26 16 3.0 1.2 0.6 15 16 <td>2</td> <td>7.9 7.2</td> <td>17 24</td> <td>29 28</td> <td>4.8 4.5</td> <td>1.7</td> <td>0.8</td> <td>2</td>	2	7.9 7.2	17 24	29 28	4.8 4.5	1.7	0.8	2
5 6.5 32 25 4.0 1.5 0.8 5 6 6.5 28 22 4.0 1.6 0.9 6 7 5.5 26 21 4.0 1.5 1.1 7 8 5.5 27 20 3.9 1.5 0.8 8 9 6.5 28 20 3.7 1.4 0.7 9 10 7.2 26 19 3.4 1.2 0.7 10 11 4.5 27 19 3.3 1.2 0.6 11 12 6.5 27 18 3.2 1.2 0.6 12 13 6.0 28 17 3.1 1.2 0.6 12 13 6.0 28 17 3.1 1.2 0.6 13 14 9.4 32 17 3.1 1.2 0.6 14 15 9.4 26 16 3.0 1.2 0.6 14 16 9.4	.4	6.0	31	28	4.3	1.7	0.8	4
11 4.5 27 19 3.3 1.2 0.6 11 12 6.5 27 18 3.2 1.2 0.6 12 13 6.0 28 17 3.1 1.2 0.6 13 14 9.4 32 17 3.1 1.2 0.6 14 15 9.4 26 16 3.0 1.2 0.6 15 16 9.4 23 15 2.9 1.1 0.6 16 17 9.4 20 14 2.8 1.1 0.6 17 18 8.4 18 14 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 18 19 8.4 14 10 2.6 0.9 0.6 19 20 9.4 14 10 2.6 0.9 0.6 20 21			32	25	4.0		0.8	5
11 4.5 27 19 3.3 1.2 0.6 11 12 6.5 27 18 3.2 1.2 0.6 12 13 6.0 28 17 3.1 1.2 0.6 13 14 9.4 32 17 3.1 1.2 0.6 14 15 9.4 26 16 3.0 1.2 0.6 15 16 9.4 23 15 2.9 1.1 0.6 16 17 9.4 20 14 2.8 1.1 0.6 17 18 8.4 18 14 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 18 19 8.4 14 10 2.6 0.9 0.6 19 20 9.4 14 10 2.6 0.9 0.6 20 21	6	6.5	28	22	4.0	1.6	0.9	6
11 4.5 27 19 3.3 1.2 0.6 11 12 6.5 27 18 3.2 1.2 0.6 12 13 6.0 28 17 3.1 1.2 0.6 13 14 9.4 32 17 3.1 1.2 0.6 14 15 9.4 26 16 3.0 1.2 0.6 15 16 9.4 23 15 2.9 1.1 0.6 16 17 9.4 20 14 2.8 1.1 0.6 17 18 8.4 18 14 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 18 19 8.4 14 10 2.6 0.9 0.6 19 20 9.4 14 10 2.6 0.9 0.6 20 21	8	5.5 5.5	· 26	21 20	4.U 3.9	1.5	1.1 0.8	/ 8
11 4.5 27 19 3.3 1.2 0.6 11 12 6.5 27 18 3.2 1.2 0.6 12 13 6.0 28 17 3.1 1.2 0.6 13 14 9.4 32 17 3.1 1.2 0.6 14 15 9.4 26 16 3.0 1.2 0.6 15 16 9.4 23 15 2.9 1.1 0.6 16 17 9.4 20 14 2.8 1.1 0.6 17 18 8.4 18 14 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 18 19 8.4 14 10 2.6 0.9 0.6 19 20 9.4 14 10 2.6 0.9 0.6 20 21	9	6.5	28	20	3.7	1.4	0.7	9
16 9.4 23 15 2.9 1.1 0.6 16 17 9.4 20 14 2.8 1.1 0.6 17 18 8.4 18 14 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 19 20 9.4 14 10 2.6 0.9 0.6 20 21 8.4 13 9.5 2.5 0.9 0.7 21 22 6.5 12 8.9 2.5 0.9 0.6 22 23 5.5 12 6.1 2.4 0.9 0.6 23 24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25								
16 9.4 23 15 2.9 1.1 0.6 16 17 9.4 20 14 2.8 1.1 0.6 17 18 8.4 18 14 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 19 20 9.4 14 10 2.6 0.9 0.6 20 21 8.4 13 9.5 2.5 0.9 0.7 21 22 6.5 12 8.9 2.5 0.9 0.6 22 23 5.5 12 6.1 2.4 0.9 0.6 23 24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25		4.5	27		3,3	1.2	0.6	11
16 9.4 23 15 2.9 1.1 0.6 16 17 9.4 20 14 2.8 1.1 0.6 17 18 8.4 18 14 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 19 20 9.4 14 10 2.6 0.9 0.6 20 21 8.4 13 9.5 2.5 0.9 0.7 21 22 6.5 12 8.9 2.5 0.9 0.6 22 23 5.5 12 6.1 2.4 0.9 0.6 23 24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25	13	6.0	28		3.1	1.2	0.6	13
16 9.4 23 15 2.9 1.1 0.6 16 17 9.4 20 14 2.8 1.1 0.6 17 18 8.4 18 14 2.9 0.9 0.6 18 19 8.9 16 12 2.9 0.9 0.6 19 20 9.4 14 10 2.6 0.9 0.6 20 21 8.4 13 9.5 2.5 0.9 0.7 21 22 6.5 12 8.9 2.5 0.9 0.6 22 23 5.5 12 6.1 2.4 0.9 0.6 23 24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25	14		32	17	3.1	1.2	0.6	14
21 8.4 13 9.5 2.5 0.9 0.7 21 22 6.5 12 8.9 2.5 0.9 0.6 22 23 5.5 12 6.1 2.4 0.9 0.6 23 24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25		•••						
21 8.4 13 9.5 2.5 0.9 0.7 21 22 6.5 12 8.9 2.5 0.9 0.6 22 23 5.5 12 6.1 2.4 0.9 0.6 23 24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25			23 20		2,9 2.8	1.1	0.6	16
21 8.4 13 9.5 2.5 0.9 0.7 21 22 6.5 12 8.9 2.5 0.9 0.6 22 23 5.5 12 6.1 2.4 0.9 0.6 23 24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25	18	8.4	18	14	2.9	0.9	0.6	18
21 8.4 13 9.5 2.5 0.9 0.7 21 22 6.5 12 8.9 2.5 0.9 0.6 22 23 5.5 12 6.1 2.4 0.9 0.6 23 24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25	19	8.9		12	2.9	0.9	0.6	19
21					2.0			
23 5.5 12 6.1 2.4 0.9 0.6 23 24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25 26 5.5 15 15 2.2 0.6 0.6 26	22	6.5	12	8.9	2.5	0.9	0.6	21
24 5.0 12 3.2 2.4 0.8 0.6 24 25 5.0 14 4.4 2.3 0.8 0.6 25 25 26 5.5 15 15 2.2 0.6 0.6 26	23	5.5	12	6.1	2.4	0.9	0.6	23
26 55 15 15 22 0.6 0.6 26	24 25	5.U 5.N	12		2.4	U.8	0.6 0.6	24 25
	26		15	15	2.2		0.6	26
26 5.5 15 15 2.2 0.6 0.6 26 27 7.2 15 9.5 2.2 0.6 0.6 27 28 9.4 18 9.5 2.1 0.6 0.6 28	27	7.2	15	9.5	$\tilde{2}.\tilde{2}$	0.6	N. R	27
28 9.4 18 9.5 2.1 0.6 0.6 28 29 13 22 6.1 2.1 0.6 0.6 29 30 16 33 4.9 2.3 0.6 0.6 30	28	9.4	18	9.5	2.1	0,6	0.6	28
29 13 22 6.1 2.1 0.6 0.6 29 30 16 33 4.9 2.3 0.6 0.6 30	3.0	16	33		2.3	0.6	0.6	30
31 36 2.4 0.6 31 Mean 7.6 22.2 15.7 3.1 1.1 0.7 Mean	31		36		2.4	0.6		31
Mean 7.6 22.2 15.7 3.1 1.1 0.7 Mean Runoff In 452 1380 934 192 69 40 Runoff I	Mean Rinoff In	·						Mean Runott In
Acre-Feet 452 1360 934 192 69 40 Acre-Fee	Acre-Feet	452	1360	934	192	69	40	26 27 28 29 30 31 Mean Acre-Feet

^{*} Beginning of Record

TABLE 49 OWL CREEK BELOW ALLEN-ARRECHE DITCH

		U	MIT CHEEK D	CLUM ALLEM-	AKKEGHE	DIIGH		
Day : 1 2 3 4 5	March :	April : 12* 12 11 12	May : 27 31 36 51 54	93 92 94 91 109	July	: August 14* 13 13 11 10	: September 3.2 3.1 3.1 3.0 2.9	: <u>Day</u> 1 2 3 4 5
6 7 8 9		12 12 11 11 11	37 36 39 45 47	120 126 120 109 106		9.9 9.2 8.4 7.6 7.1	3.3 3.4 2.8 2.5 2.2	6 7 8 9
11 12 13 14 15		11 11 12 16 17	48 51 50 51 63	76 76 93 68 82		6.6 6.1 5.8 5.5 5.1	2.2 2.2 2.1 2.1 2.0	11 12 13 14 15
16 17 18 19 20		17 18 17 16 16	56 40 38 38 38	98 98 61 78 91		5.0 4.7 4.5 4.4 4.3	2.0 1.9 1.9 1.8 1.8	16 17 18 19 20
21 22 23 24 25		13 11 10 9.8 12	35 34 38 46 60	123 124 124 122 120		4.2 4.2 4.1 4.1	1.8 1.8 1.8 1.8	21 22 23 24 25
26 27 28 29 30 31		23 21 22 25 26	62 58 82 98 98	300 250 230 180 150**	•	4.1 4.1 4.1 4.0 4.0	1.7 1.8 1.8 1.9	26 27 28 29 30 31
31 Mean Junoff In Cre-Feet		873	3120	7150		397	135	31 Mean Runoff In Acre-Feet

^{*} Beginning of Record ** End of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA 1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 50 RADER CREEK ABOVE ALL DIVERSIONS

Day :	March :	April	: May	: June	:	July	:	August	:	September	:	Day
1 2		3.8* 4.0 4.7	11 12 13									1
2 3 4 5		4.7 4.4 3.7	1 4 1 4 1 4									2 3 4 5
6 7		4.0 3.8	1 4 1 4									6 7
8 9 1 0		3.7 4.7 4.7	1 4 1 4 1 5									6 7 8 9 10
11 12		3.8 3.7	16 20									11
13 14 15		3.8 4.4 4.9	21 21 20									12 13 14 15
16 17		4.9 4.8	20 16									
18 19 20		4.8 4.6 4.6	14 14 14									16 17 18 19 20
21		4.4	1 4 1 4									
22 23 24 25		4.0 3.9 4.6	14 16 19									21 22 23 24 25
26 27		5.9 6.1	1 9 1 9 2 2									
28 29 30		6.8 7.4 7.8	22 21 25									26 27 28 29 30
31		7.8 <u>4.7</u>	25 <u>24**</u> <u>16.7</u>						-		-	30 31 Mean
Mean Runoff In Acre-Feet		280	1 021								Rur Acı	Mean ioff In e-Feet

^{*} Beginning of Record** End of Record

TABLE 51 EAGLE CREEK AT EAGLEVILLE

						-				
Day : 1 2 3 4 5	March	8.8* 8.8 9.5 9.5	May : 20 25 27 31 27	June : 20 20 20 20 22 22	July	: August	: 5	eptember	: <u>I</u>	1 2 3 4 5
6 7 8 9 1 0		14 14 12 12 9.5	22 20 25 27 31	22 24 26 26 31		,				6 7 8 9 10
11 12 13 14 15		8.8 8.1 8.1 9.5	33 35 35 33 33	46 53 55 53 62						11 12 13 14 15
16 17 18 19 20		14 12 9.5 9.5 8.1	31 26 26 25 25	68 46 25 31 33						16 17 18 19 20
21 22 23 24 25		6.8 6.8 6.1 6.1	24 22 24 29 35	38 35 40 42 42						21 22 23 24 25
26 27 28 29 30 31		8.8 9.5 12 16 22	33 31 35 35 33 31 28 7	200E 300E 300E 275E 250E**						26 27 28 29 30 31
Mean Rünoff In Acre—Feet		6 25	1760	4420E					Rūnof Acre-	an f In

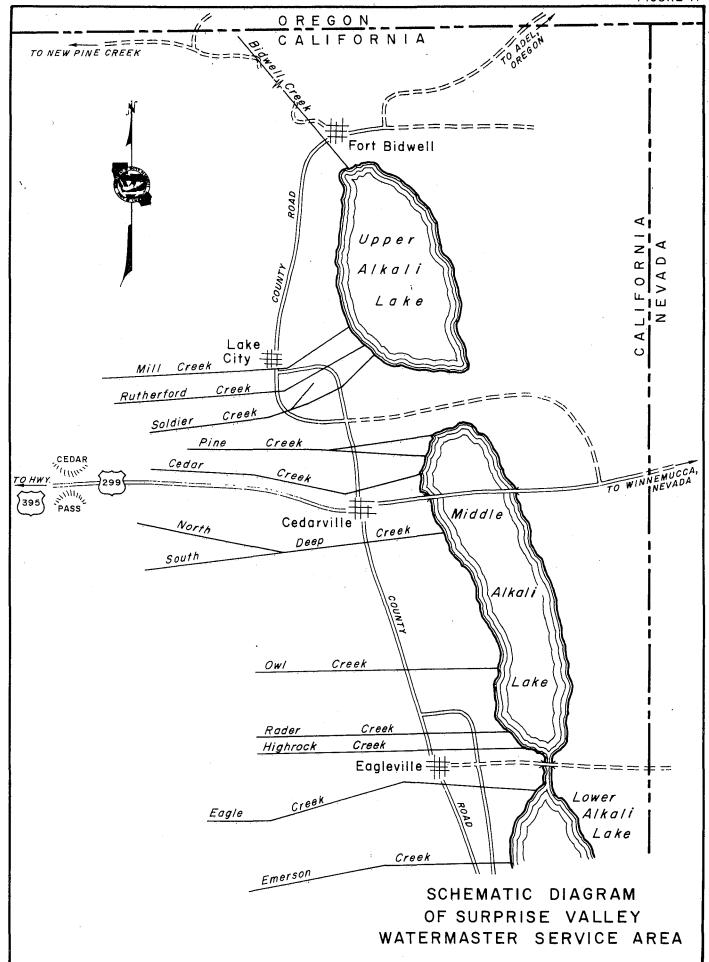
^{*} Beginning of Record ** End of Record E Estimated

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 52
EMERSON CREEK ABOVE ALL DIVERSIONS

Day : Marc	11*	May : 17 19	June :	21	August	September 5.5	Day
2 3 4 5	13 12 11 12	21 28 28	39 38 38 33	21 21 21 20	8.8 8.3 7.9 7.8	5.5 5.7 5.9 5.7 5.5	2 3 4 5
6 7 8 9 10	13 14 13 13	24 23 26 28 30	35 40 46 47 50	19 18 17 17	7.6 7.6 7.5 7.5 7.3	5.7 5.9 5.5 5.5 5.3	6 7 8 9 10
11 12 13 14 15	12 12 12 12 13	32 34 38 32 35	46 46 40 39 35	16 15 13 12 12	7.1 6.8 6.5 6.3 6.2	5.3 5.3 5.3 5.3	11 12 13 14 15
16 17 18 19 20	13 13 14 13 12	35 30 28 27 24	37 35 35 31 28	12 12 12 12 11	6.2 6.0 6.0 6.2 6.2	5.3 5.3 5.3 5.5	16 17 18 19 20
21 22 23 24 25	11 10 9.6 8.8 10	24 24 26 28 32	28 26 27 25 28	11 11 11 10 9.9	6.2 6.2 6.2 6.2 6.0	5.5 5.5 5.5 5.5	21 22 23 24 25
26 27 28 29 30 31	13 13 14 15	32 32 40 46 42 40	48 31 29 . 28 28	9.4 8.8 8.3 8.8 9.4	5.9 5.7 5.5 5.3 5.5	5.7 5.7 5.5 5.5	26 27 28 29 30 31
Mean Runoff In Acre-Feet	73 4	1840	2140	<u>13.7</u> 845	411	327	Mean Runoff In Acre-Feet

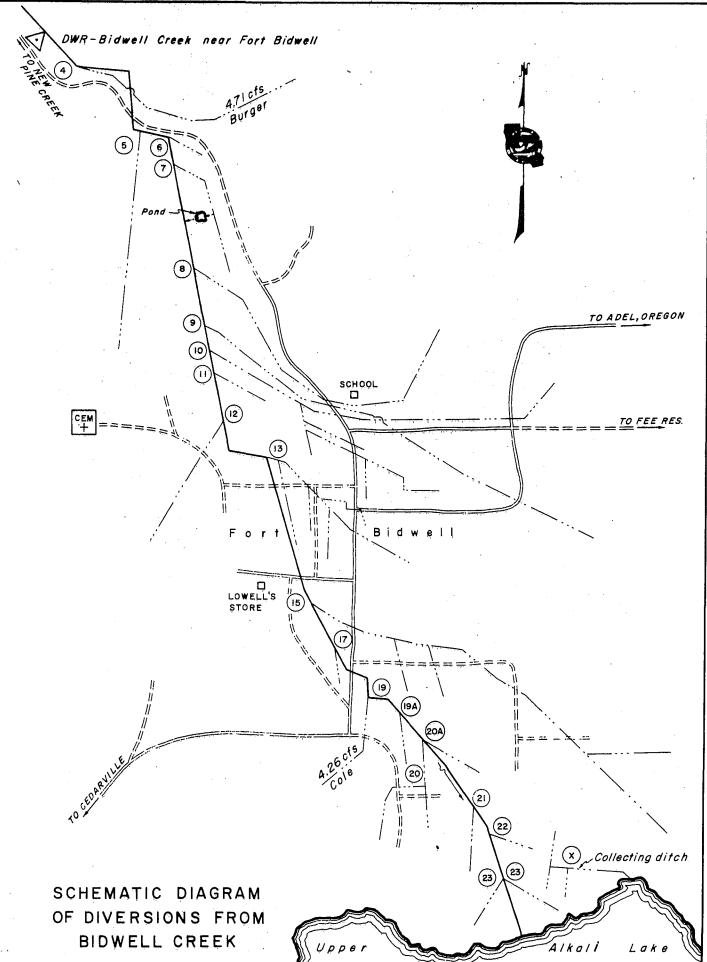
^{*} Beginning of Record

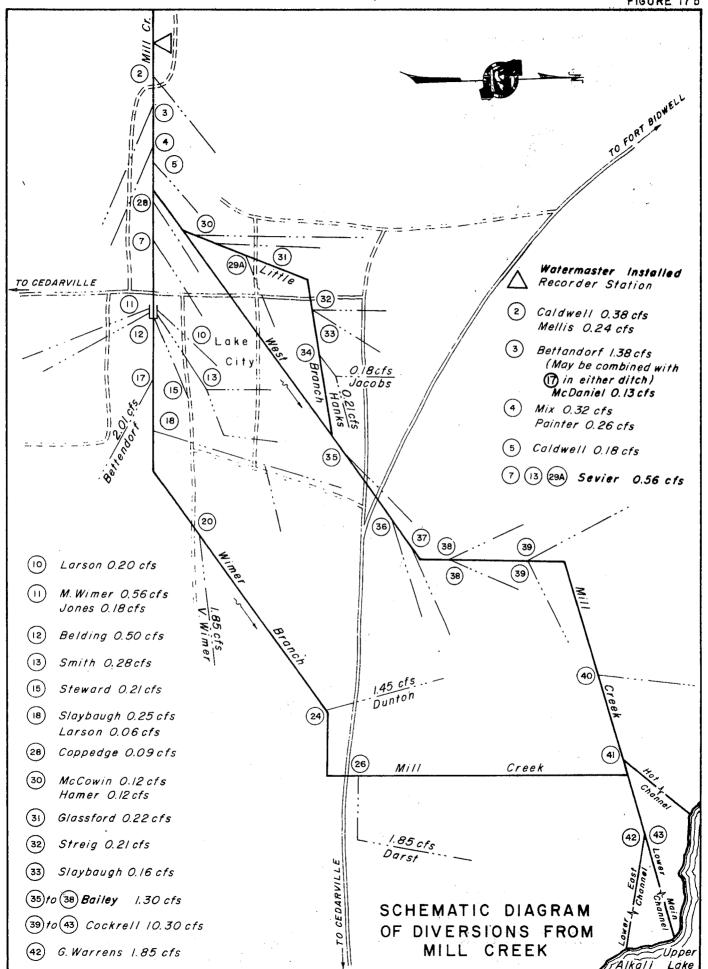


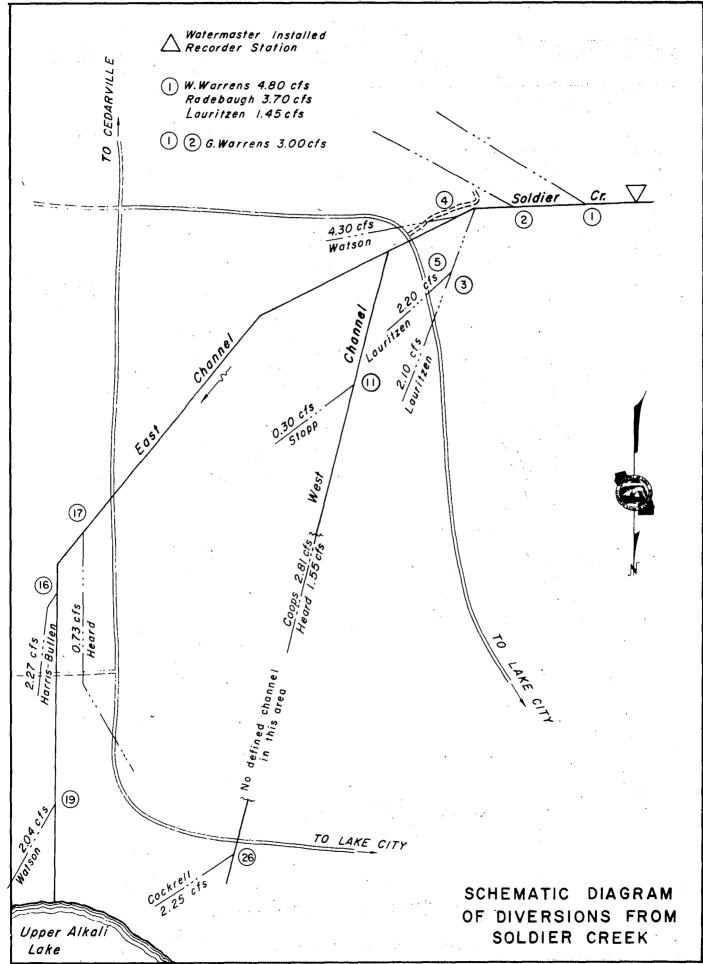
March 15 through July 9 (major season of use)

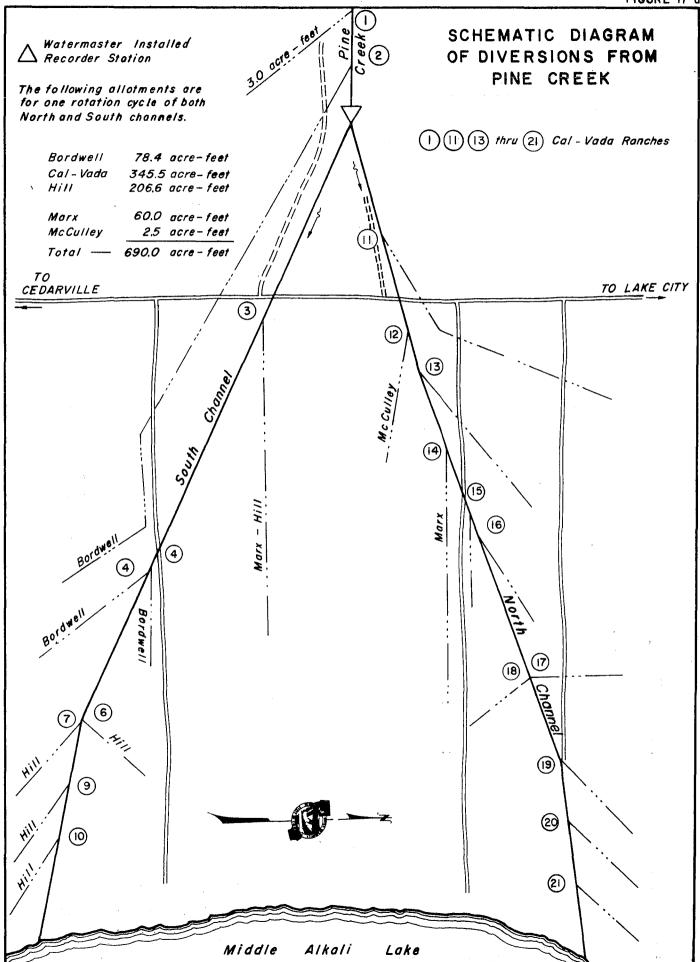
- 5 G. Peterson O.38 cfs C. Bucher O.45 cfs Sweeney O.07cfs
- 6) Sweeney O.18cfs
- (7) G. Peterson 0.50 cfs
- B McConnaughy 7.24 cfs*
 Town Users 0.06 cfs
- 9 Conlan 7.63 cfs Town Users 0.22 cfs
- (10) Carey 6./3 cfs C.Bucher 0.66 cfs P. Peterson 0.44 cfs Town Users 0.30 cfs
- (II) C. Bucher 0.38 cfs
- (12) U.S. Indian Service 0.46 cfs Green 0.14 cfs Baty 0.12 cfs
- (13) McConnaughy 5.24 cfs*
 Town Users 0.44 cfs
- (15) Fee 8.94 cfs · Sagehorn I.34 cfs O'Callaghan 2.88 cfs Toney 0.42 cfs
- (17) Kober 0.05 cfs
- (20) Sagehorn 0.88cfs
- (19A)(20)(20A)Carey / 43 c fs
- (21) Sagehorn 1.39 cfs
- (22) O'Callaghan 0.38 cfs
- (23) Sagehorn 1.79 cfs
- Sagehorn If flow is less than
 3.82 cfs, deficiency is made up by
 additional diversion through (15)
 if Fee Ranch allotment is satisfied.
- * May be used in either ditch

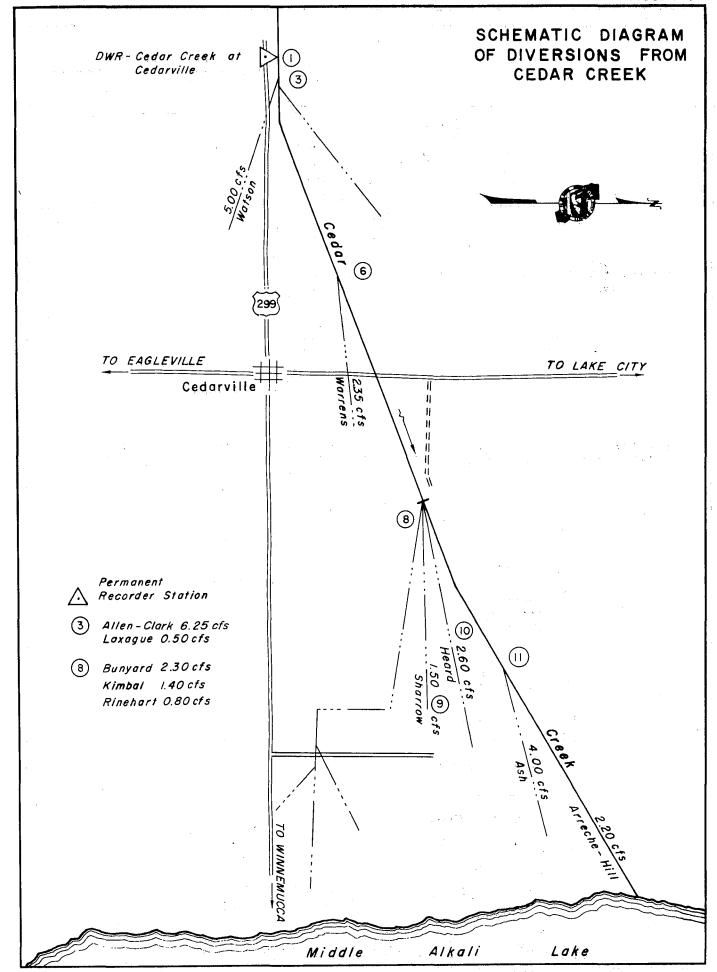
NOTE: Sagehorn and O'Callaghan waters may be used in any of their ditches at discretion of user and watermaster.

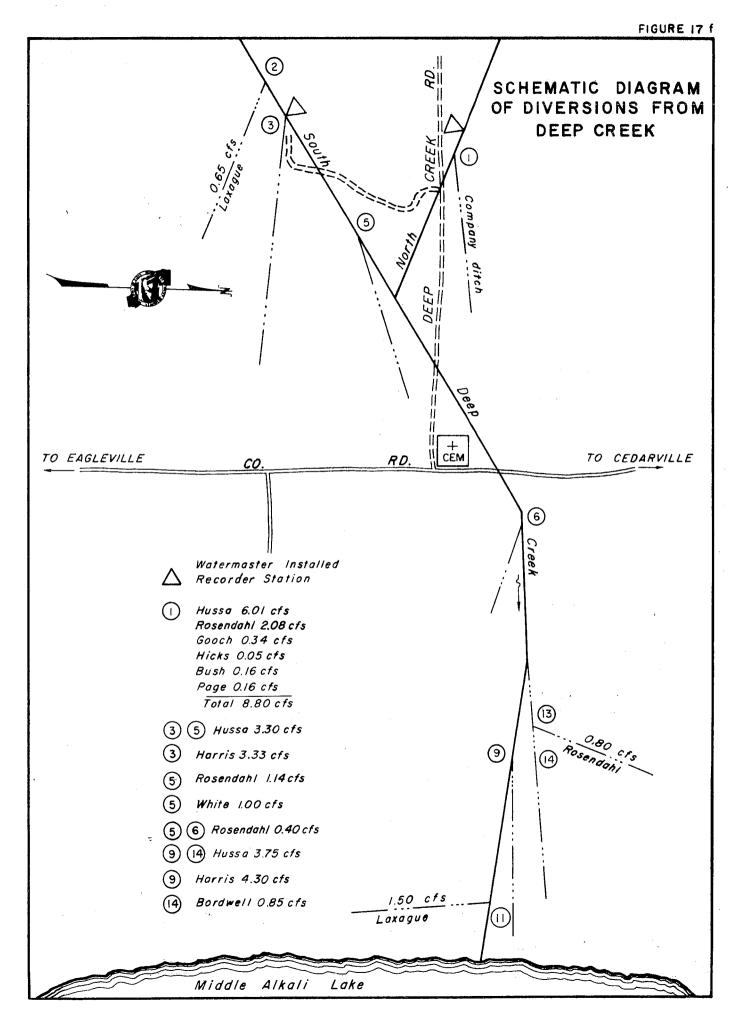


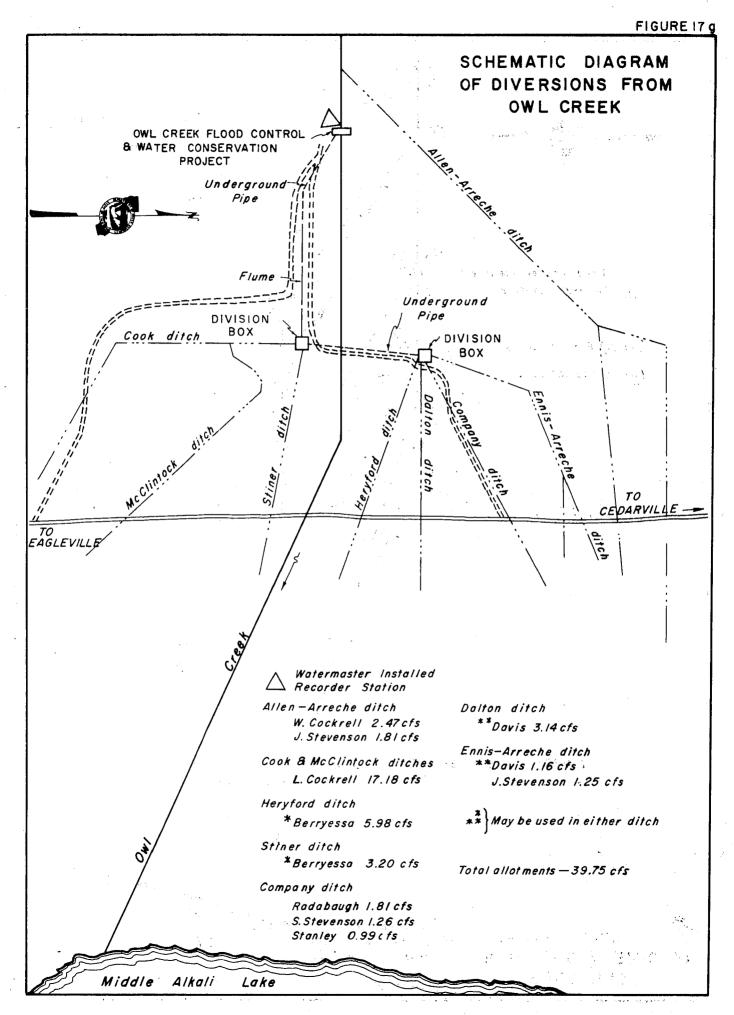


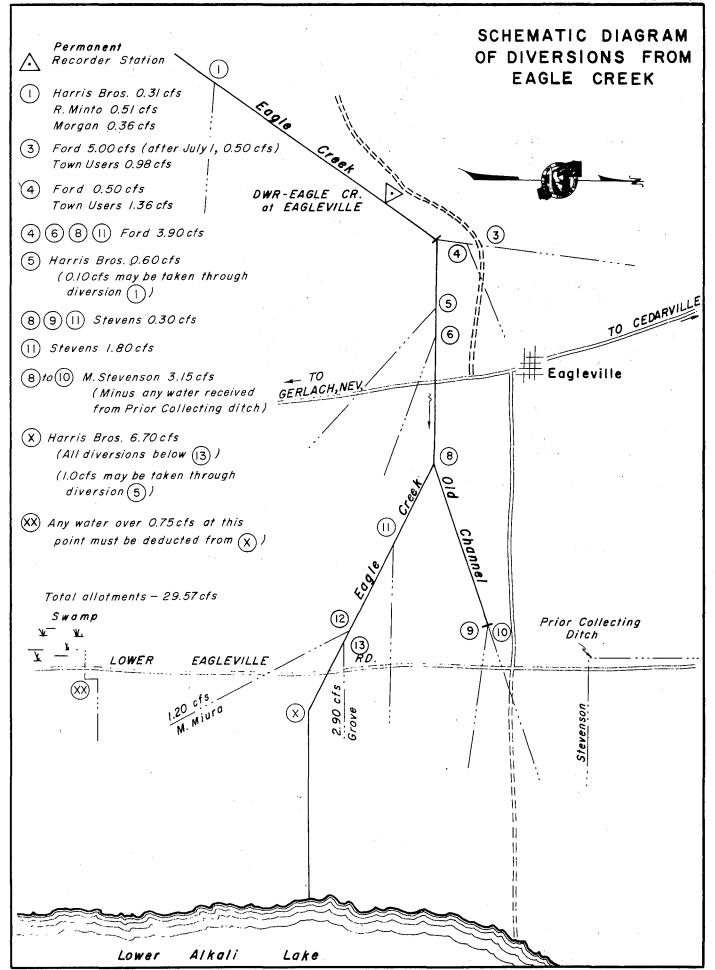


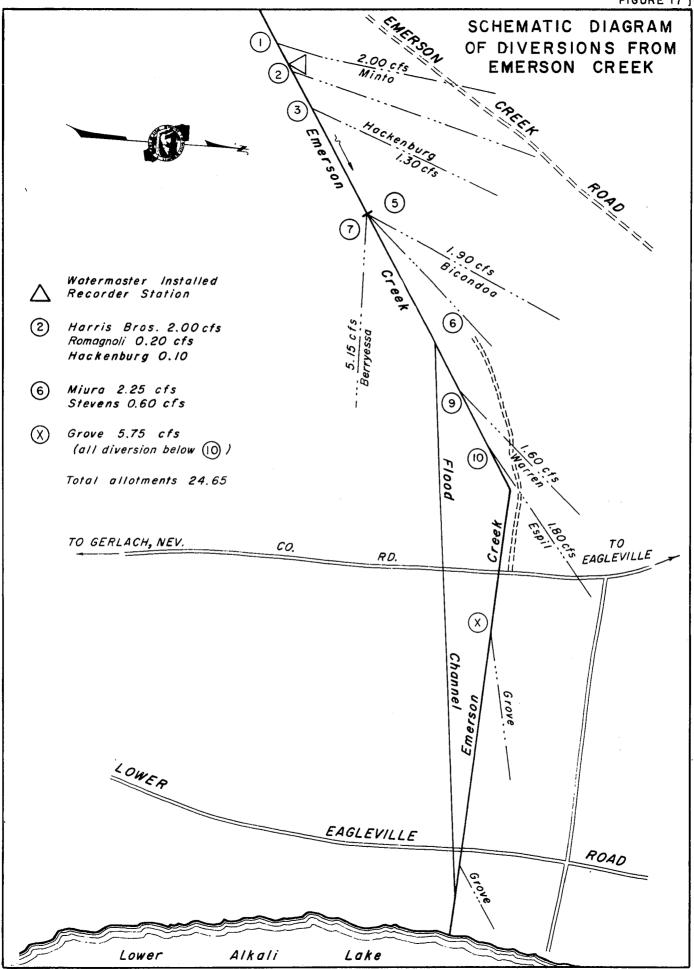












Susan River Watermaster Service Area

The Susan River service area is located in the southern part of Lassen County in the vicinity of Susanville. There are 160 water right owners in the service area with total allotments of 351.732 cubic feet per second. The primary place of use is in Honey Lake Valley between Susanville and the northwest shore of Honey Lake, a distance of about 25 miles. The valley floor is at an elevation of about 4,000 feet. The source of supply is comprised of three stream systems: Susan River and tributaries, Baxter Creek and tributaries, and Parker Creek.

Susan River originates on the east slope of the Sierra Nevada immediately east of Lassen National Park at an elevation of about 7,900 feet. Its channel runs easterly from Silver Lake through McCoy Flat Reservoir, the town of Susanville, and then to Honey Lake.

Susan River has four major tributaries: Piute Creek, entering from the north at Susanville; Gold Run and Lassen Creeks, entering from the south between Susanville and Johnstonville; and Willow Creek, entering from the north above Standish. Gold Run and Lassen Creeks rise on the north slope of Diamond Mountain at an elevation of about 7,600 feet. The watersheds of Piute and Willow Creeks are on the south slopes of Round Valley Mountain at lower elevations.

A short distance below its confluence with Willow Creek the Susan River divides into three channels: Tanner Slough Channel on the north, Old Channel in the middle, and Dill Slough Channel on the south. Hartson Slough and Whitehead Slough divert from Dill Slough on its south bank farther downstream.

The Baxter Creek stream system is located in Honey Lake Valley on the east

slope of the Sierra Nevada Mountains, about 10 miles southeast of Susanville. The principal creeks in the system are: Baxter Creek, which rises in the extreme western portion of the basin and flows in an easterly direction, and Elesian, Sloss, and Bankhead Creeks, which are tributaries of Baxter Creek from the south.

Parker Creek is situated in Honey Lake Valley on the east slope of the Sierra Nevada Mountains about 15 miles southeast of Susanville. It rises on the east slope of Diamond Mountain and flows in an easterly direction for about 5 miles into Honey Lake.

A schematic drawing of each major stream system within the Susan River service area is presented as Figures 18 through 18e, pages 159 through 166.

Water_Supply

The water supply in the Susan River service area is obtained from two major sources, snowmelt runoff and springs. Snowpack on the Willow Creek Valley and Piute Creek watersheds, which embrace more than one-half of the Susan River stream system, melts early in the spring and is usually depleted by May 1. Irrigation requirements from this portion of the stream system are then almost entirely dependent on the flow of springs that are relatively constant throughout the year.

Under average flow conditions, Lassen, Gold Run, Baxter, and Parker Creeks, and Susan River above Susanville are sustained by snowmelt runoff until early June. The flow from perennial springs in this portion of the system is comparatively small.

The Lassen Irrigation District stores supplemental water in Hog Flat and McCoy Flat Reservoirs, located on the

headwaters of the Susan River. This stored water is released into the Susan River Channel and commingled with the natural flow, usually during June and July. It is then rediverted into Lake Leavitt for further distribution by the irrigation district.

Records of daily mean discharge of the several stream gaging stations in the service area are presented in Tables 53 through 57, pages 156 through 158.

Method of Distribution

Irrigation in the Susan River service area is accomplished by placing dams in the main channels, thus raising the water level for subsequent diversion into canals and ditches. These diversion dams are relatively large on the Susan River Channel and much smaller on the tributaries. Wild flooding is the most common method of irrigation in practice. Portions of the irrigated lands have been leveled, permitting a more efficient use of water by using border checks and furrows. Subirrigation occurs in some areas incidental to surface irrigation or as a result of seepage from ditches and creek channels.

The Lassen Irrigation Company is entitled to divert or store up to the present capacity of its reservoirs from the natural flow of Susan River between March l and July l of each year when the flow of Susan River immediately above Willow Creek is more than 5 cubic feet per second in spite of the allotments granted to users in Schedules 3 and 6 and to users of third priority class in Schedule 5 of the Susan River decree. When the flow of Susan River immediately above Willow Creek is below the required amount, the watermaster then measures the inflow to McCoy Flat Reservoir, and if available, releases the amount required. A transportation loss of 15 percent, or a minimum of two cubic feet per second, is deducted from all water that is transferred from Lassen Irrigation Company upstream storage reservoirs to Lake Leavitt.

The several decrees (see Table 1) which apply to the Susan River service area establish the following number or priority classes for the major stream systems and distributions areas: Baxter Creek - five; Parker Creek - four; Gold Run Creek - three; Lassen Creek - two; Piute and Hills Creek - one; Willow Creek - two; and Susan River - three. Geographical features are such that the Susan River, Willow Creek and Lower Susan River areas are subject to interrelated priorities.

1971 Distribution

Watermaster service began in the Susan River service area on April 1 and continued until September 30 with Lester Lighthall, Water Resources Technician II, as watermaster.

The available natural water supply throughout the service area was about average. Because of the late runoff caused by the cool spring weather, the irrigation season was well above normal.

Parker Creek. The available water supply in Parker Creek was sufficient to satisfy all allotments (four priorities) until Appli 17 From Appli 17 to May 14 the flow decreased rapidly to first priority allotments, which were then served for the remainder of the season.

Baxter Creek. The available water supply was sufficient to satisfy third priority allotments (a total of five priorities) until July 15. The flow decreased from July 15 to August 10 when approximately 60 percent of second priority allotments were supplied. The flow at Diversion No. 75 never dropped to 1.0 cubic feet per second.

Lassen-Holtzclaw Creeks. The available water supply in Lassen-Holtzclaw Creeks was sufficient to meet all allotments (two priorities) until July 20. The flow decreased to first priority allotments on August 10. From August 10 throughout the remainder of the season the Tangeman Ranch was entitled to all of the water available in the stream.

Hills Creek. Available water supply in Hills Creek was sufficient to supply all allotments (one priority) until July 31, and all storage facilities on Hills Creek were filled by this date. First priority water declined until September 5 when only stockwater was available to the Amesbury Ranch.

Gold Run Creek. The available water supply in Gold Run Creek was sufficient to supply all allotments (three priorities) until July 10. Between July 10 and August 20, the flow decreased steadily. After August 20 the flow remained reasonably constant, supplying about 15 percent of second priority allotments.

Piute Creek. The available water supply in Piute Creek was sufficient to satisfy all allotments (one priority) and provide a small surplus flow to the Susan River throughout the season.

<u>Willow Creek.</u> The available water supply in Willow Creek was sufficient to supply all allotments (two priorities) throughout the season.

Susan River. The available water supply in the Susan River was sufficient to supply all allotments in Schedule 6 (three priorities) until July 31. As the flow receded, Schedule 6 was terminated for the season. All allotments in Schedule 3 (three priorities - Lower Susan River) were satisfied until late July. Throughout the remainder of the season there was enough water for about 50 percent of second priority allotments in this schedule.

All allotments in Schedule 5 (three priorities - Upper Susan River area)

were satisfied until July 31. The flow receded until August 20 when there was enough water for about 20 percent of the second priority allotments. Throughout the remainder of the season the flow remained constant.

Lassen Irrigation Company Reservoirs.

The Susan River decree allows the Iassen Irrigation Company's McCoy Flat and Lake Leavitt Reservoirs to store surplus water during the winter and spring months. Once filled, or if a shortage occurs among downstream water right owners, the natural flow in the Susan River above McCoy Flat Reservoir must be released.

During spring runoff the above reservoirs filled to capacity. Shortages began to occur in early July, so controlled releases began on July 12. The company requested that its releases from Hog Flat Reservoir begin so the water elevation in Lake Leavitt could be kept high enough to allow irrigation out of High Canal to continue. Releases continued until August 30 at which time Hog Flat Reservoir was emptied.

McCoy Flat Reservoir releases began on July 14 and continued until August 30 at which time there was sufficient water in Lake Leavitt for Lassen Irrigation Company to complete its irrigation season.

Special Occurrences

The Lassen Irrigation Company reservoirs being filled during the spring contributed significantly to a better than average irrigation season for the Susan River water users.

SUSAN RIVER WATERMASTER SERVICE AREA

1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 53
SUSAN RIVER AT SUSANVILLE

Day :	March	: April	: May:	june	: July	: August	: September	: Day
1	55	334	321	52 7	98	93	21	1
2 3 4 5	54	330	307	459	93	92	· 19	2
3	54	3 08	392	4 08	87	90	19	3 4 5
4. 5	51 46	285 271	463 493	341 309	83 79	88 86	18 17	4
6 7	45	307	491	2 82	76	87	16	6
/ R	45 45	309 287	4 96 5 3 9	268 221	73 69	95 97	15 15	/
8 9	46	305	55 7	184	68	97	15	0
10	47	399	562	180	66	95	15	6 7 8 9 10
11	55	310	573	1.77	67	93	15	11
12	437	3 03	593	173	65	92	15	12
13	266	313	578	169	65 88	89	15	13
14	161	302	551	164	95	89	14	12 13 14
15	128	326	529	161	1 01	85	14	15
16	124	338	504	157	104	79	14	16
17	124	353	449	160	106	75	13	17
18	100	285	409	161	119	72	13	18
19 20	94 103	256 259	380 345	151 140	120 140	6 7 65	14 14	19
								20
21	124	229	342	115	127	63	14	21
22	144	204	316	102	114	61	14	22
23 24	726 531	196 185	298 263	89 80	109 106	60 60	1 4 1 3	23
25	499	173	216	83	1 03	59	13	22 23 24 25
26 27	1 46 0 5 8 9	181 192	2 43 2 8 2	243 192	1 01 99	69 69	16 18	26 27 28 29
28	452	217	432	135	96	55	16	21
29	398	256	486	117	96	51	17	29
30	385	288	581	104	92	47	23	30
31	353		530		91	<u>35</u> 76		31
Mēan	250	277	436		94.5	76	15.6	Mean
Runoff In- Acre-Feet	15350	16470	26820	12000	5810	4670	930	Runoff In Acre-Feet

TABLE 54

GOLD RUN CREEK NEAR SUSANVILLE

Day: March 1 2 3	: April : 13* 13 13	May : 32 32 38 40	June : 66 50 50 50	1 6 1 6 1 5	5.4 5.2 5.0 4.8 4.6	: September 2.5 2.5 2.5	: Day 1 2 3 4 5
4 5	13 13	50	50	14		2.5 2.5	
6 7 8 9 10	15 16 16 19 24	47 50 74 74 76	50 57 71 71 74	12 11 10 9.9 9.8	4.4 4.2 4.0 3.8 3.6	2.5 2.5 2.5 2.4 2.3	6 7 8 9 10
11 12 13 14 15	16 15 15 16 22	79 90 88 85 85	71 74 74 71 71	9.6 9.4 9.3 9.2 9.1	3.6 3.4 3.2 3.2 3.0	2.3 2.3 2.2 2.2 2.2	11 12 13 14 15
16 17 18 19 20	23 24 19 16 16	85 7 8 6 9 7 4 7 4	71 71 64 60 57	9.0 9.0 9.0 9.0	2.8 2.8 2.7 2.7 2.6	2.2 2.2 2.2 2.2 2.2	16 17 18 19 20
21 22 23 24 25	15 13 13 13 12	64 57 66 69 7 4	47 44 40 34 32	8.9 8.5 8.1 7.9 7.7	2.5 2.5 2.6 2.5 2.5	2.2 2.2 2.2 2.2 2.2	21 22 23 24 25
26 27 28 29 30 31	11 11 15 19 24	71 74 76 69 69	57 40 32 26 23	7.7 7.5 7.2 6.2 5.8	4.0 3.8 2.8 2.7 2.6 2.5	2.5 2.8 2.7 2.5 2.4	26 27 28 29 30 31
Mean Runoff in Acre-Feet	95 8	4130	327Q	5 94	210	140	Mean Runoff In Acre-Feet

^{*} Beginning of Record

SUSAN RIVER WATERMASTER SERVICE AREA

1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 55 SUSAN RIVER AT JOHNSTONVILLE BRIDGE

Day	:	Marc	c h	:	April	:	May	: .	June	:	july	:	Augus t	:	September	:	Day
1 2 3		*270%1		-	**		-				4 4 4 2		43 42	٠.	4.6 4.4		1 2
4											42 41 39 37		42 41		4.2		2 3 4 5
5													38		3.8		
6 7											. 34 35		3 7 35		3.5 3.1		6 7
8 9 10											21 19		33 29		3.0		8
10											18		26		2.9 2.8		6 7 8 9 1 0
11											19 **		24		2.7		
12 13											* ጥ		22 19		2.7		12 13
1 4 1 5													1 8 1 7		2.7 2.6 2.6	,	11 12 13 14 15
16													16		2.5		
17													15		2.4 2.4		16 17 18 19 20
1 8 1 9									**				14 13		2.4 2.4		18 19
2 0									92 *			٠	13		2.4		20
21									81 53		** 89		12 10		2.3 2.1 2.0 2.0 2.0		21
2 2 23									29		69		8.0		2.0		23
2 4 2 5									29 35		65 56		7.5 6.9		2.0 2.0		21 22 23 24 25
26									81		53		6.7				
27									200E		51		6.9 6.9		2.4 2.5 2.3		27
28 29									120E 90		50 47		5.5 5.0		2.3		28 29
3 0 3 1									90 66		45 44		5.0 4.8		2.4		26 27 28 29 30 31
Mean	. .	·							·			-	<u>4.8</u> 19.9		2.7	 -	Mean
Rünoff Ir Acre-Feet	1												1220		1 71	Rur	ioff In re-Feet

* Beginning of record

** Mean daily flow from April 1 to June 19 and July 12 to July 21 was in excess of 100 cfs.

E Estimated

TABLE 56 WILLOW CREEK NEAR SUSANVILLE

			# / E E O # O !	, L L II II II II II	O O O A MITTELL			
Day :	March 35 42 42 44 43	82 84 77 70 65	May : 47 47 47 51 51	216 208 163 140 125	July : 22 23 24 24 25	31 30 30 30 28	14 14 14 14 14 14	: <u>Day</u> 1 2 3 4 5
6 7 8 . 9 10	43 42 41 40 40	62 60 5 9 5 8 65	49 49 50 49 47	1 0 9 95 86 75 6 0	24 24 23 23 24	28 27 27 27 27	14 13 13 13	6 7 8 9 1 0
11 12 13 14 15	40 74 154 . 167 127	60 57 41 36 35	47 35 27 24 23	50 44 39 33	27 34 38 42 42	28 25 25 24 25	1 4 1 5 1 5 1 5 1 4	11 12 13 14 15
16 17 18 19 20	116 96 76 70 65	35 42 47 47 46	24 24 24 15	29 28 27 25 24	41 39 39 39 39	26 26 26 26 25	14 14 14 14 15	16 17 18 19 20
21 22 23 24 25	62 65 103 89 84	50 48 49 58 61	18 19 20 22 24	2 4 22 21 1 9 1 7	35 40 39 38 37	26 27 27 27 27	28 32 32 32 32	21 22 23 24 25
26 27 28 29 30 31	3 0 9 3 0 0 1 7 6 1 2 8 1 0 6 9 0	60 57 54 51 49	24 26 37 68 124 167	2 0 23 24 22 22	36 - 35 33 33 33	28 20 16 15 14	33 33 34 34 35	26 27 28 29 30 31
Mean lunoff In lore-Feet	5770	3300	2570	3610	2010	155,0	1200	Mean Runoff In Acre-Feet

SUSAN RIVER WATERMASTER SERVICE AREA

1971 Daily Mean Discharge in Cubic Feet Per Second

TABLE 57 OPERATION OF McCOY AND HOG FLAT RESERVOIRS

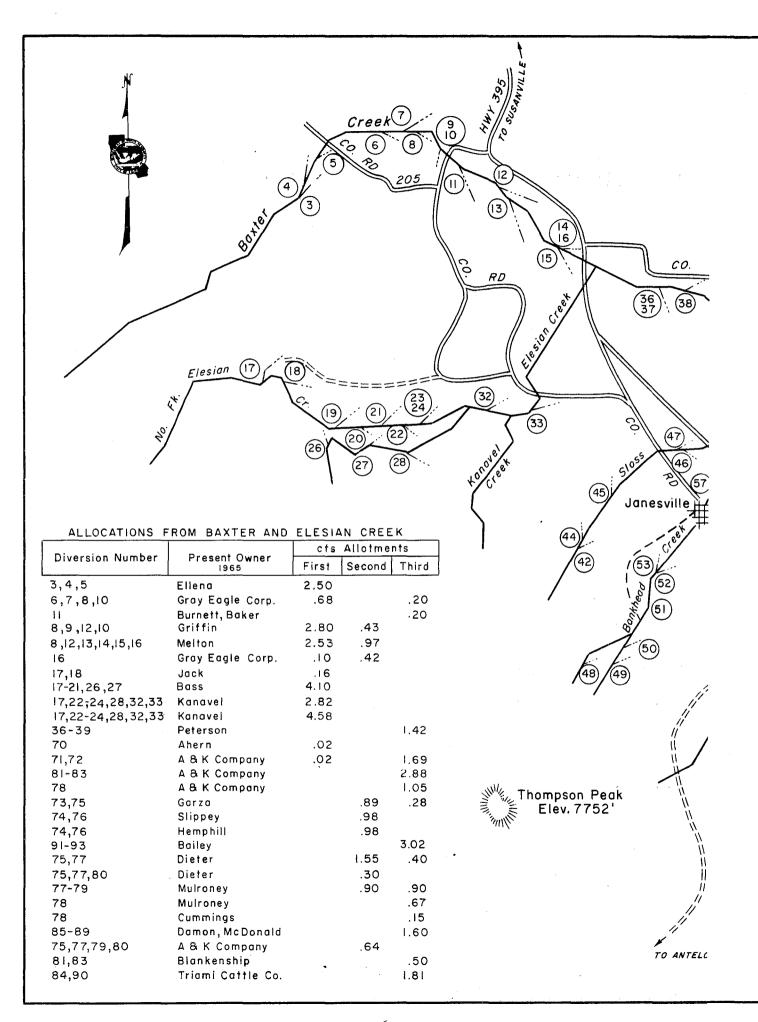
:	McCoy F Infloy Susan		: Rele	Flat Res. eases to in River	:	Rele	lat Res. ases to n River	Water	from McC	n Irrig. Dist oy Flat and Lake Leavitt	· :	
Day : 1 2 3 4 5	June	6.6 5.1 4.8 4.4 3.9	: July 4.13/ 5.3 7.0 10	43 43 43 42 41	:	July	50 50 50 50 50 50	2.11/ 5.3	54 56 54 49 47	16 9.8 ₂ / 8.8 ² /	: .	1 2 3 4 5
6 7 8 9 10		3.4 2.8 2.5 1.9	12 15 17 19 23	42 43 45 47 46			54 54 53 52 50	6.1 7.4 10 12 14	53 56 55 56			6 7 8 9 1 0
11 12 13 14 15		0.7 ₅ / 0.2 <u>5</u> /	24 26 28 36 42	48 47 48 46 44		213/ 50 50 50	47 44 42 40 38	1 8 2 2 3 5 5 4 5 2	63 69 70 62 57			11 12 13 14 15
16 17 18 19 20	37 <u>1</u> / 34		44 47 45 47 44	42 43 41 42 41		49 49 51 51 51	36 34 32 28 24 20	60 63 59 59 59	56 56 63 55 53			16 17 18 19 20
21 22 23 24 25 26	31 28 24 20 18 15		45 44 43 42 42	41 40 40 42 42 42		51 51 51 50 50	17 14 11 8.4 6.1	66 52, 46 46 53	51 51 50 41 45			21 22 23 24 25 26
27 28 29 30 31	12 10 8.2 7.3		40 42 41 39 <u>31</u> . <u>2</u>	37 33 6.4 3.64 3.44		50 50 49 49	4.8 3.6 2.6 1.5 1.05	32 32 36 69 51	53 45 37 35 26 52.4			27 28 29 30 31
Mean Runoff In Acre-Feet	485	74	1920	2390		1937	1 92 0	2150	3220	69	Ruño	lēāñ ff ∏ñ -Feet

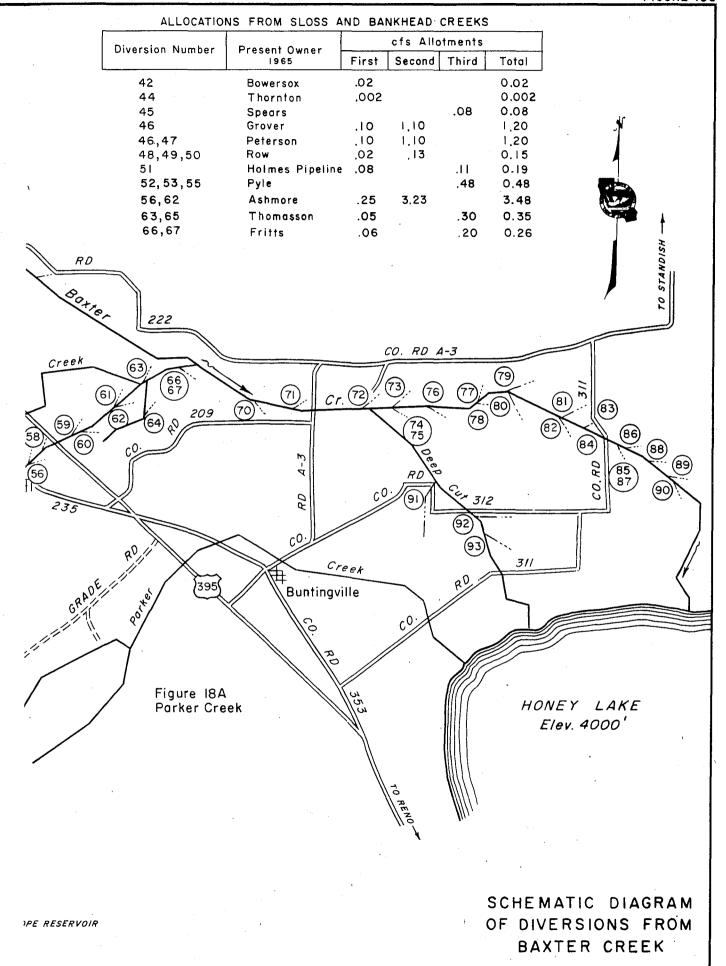
^{1/} Beginning of Record
2/ End of Record
3/ Beginning of Releases
4/ End of Releases
5/ End of Flow

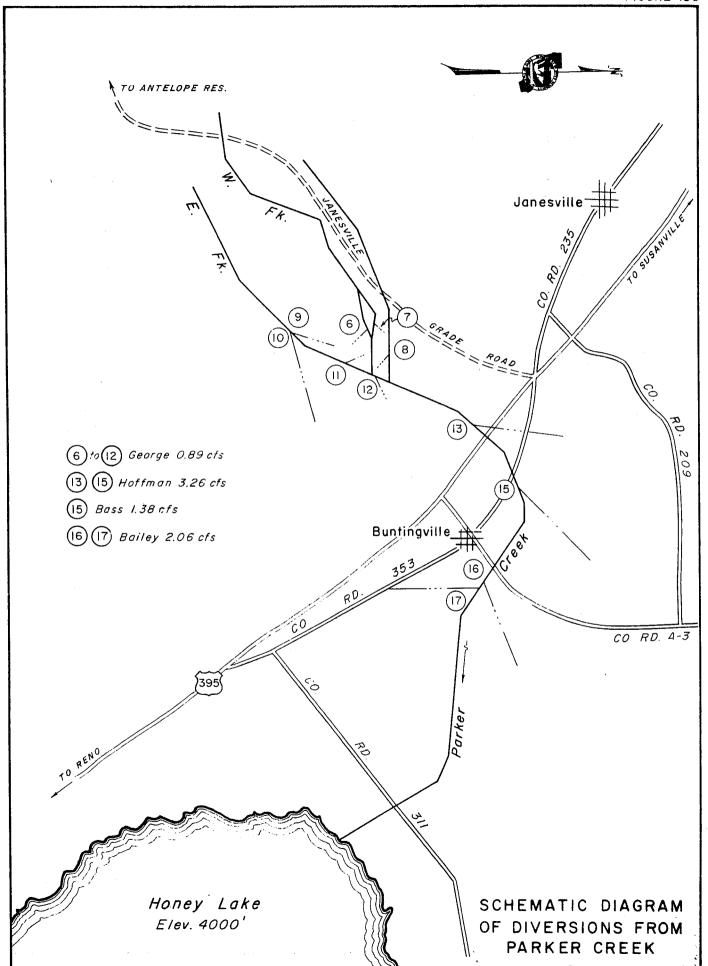
1973 7,650 1972 10,000

TO ALTURAS

OF SUSAN RIVER WATERMASTER SERVICE AREA







3 = Schedule 3 5 = Schedule 5 6 = Schedule 6
(56),(94) to (96) Barry Story Fraley Mendiboure Wagner (2.00 cfs 3) 1 95 cfs 6
71), McClelland { 2.67cfs 3 733cfs 5 0.75cfs 6
(57), (58), (69) Gibson { 2.00 cfs 3 5 50 cfs 5
(58) to (61) , Mapes $\begin{cases} 2.91 \text{ cfs} & \boxed{3} \\ 8.03 \text{ cfs} & \boxed{5} \\ 2.35 \text{ cfs} & \boxed{6} \end{cases}$
(B) to (B3) DeWitt 0 33 cfs 3 0.92 cfs 5 0 50 cfs 6
Theodore 050cfs 3 138 cfs 5 260cfs 6
(85), (86) Calif. Fish & Game { 3 33 cfs 3 9.17 cfs 5 6 70 cfs 6
(82)(87)to(H9), Copezzoli { 200cfs 3 (91),(92) DeWitt { 5.50cfs 5
(99) (102) Beckett { 2 30 cfs 3 5 50 cfs 5 5 /5 cfs 6
(98),(100),(101) Bailey {1.33 cfs 3 367cfs 5
(97) Tanner (1,33 ats 3) (3.67 ats 5
(106, (109) Buckner (025cfs 3) (0.85cfs 6)
(107),(108) Beckett (0.25 cfs 3) 0.95 cfs 6
(110),(111) Anderson { 0.25 cfs 3 } (1.30 cfs 6
(112) to (114) Calif Fish & Game 3.10cfs 6

\(\text{Watermaster installed } \) Recorder Station

